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ORIGINAL ARTICLES.

THE DIFFERENTIAL DIAGNOSIS OF URÆMIA.

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It will be my object in this paper to draw the line as sharply as possible between those comatose states which are sometimes mistaken for uræmia, and the latter condition itself. I am the more willing to undertake this task, believing that the importance of the subject can scarcely be overestimated. It is surely no uncommon experience with those who are engaged in active general practice to meet with cases in which men—especially those advanced in life—have been suddenly struck down in an unconscious state to which, unfortunately, too often death constitutes the speedy sequel. Indeed, so frequently is this picture presented to the professional eye, that in the aged it has come to be looked upon almost as a matter of course. To the mind the thread of possibility, by which depends the lengthened skein of life, grows so brittle with advancing years that its individual strands seem scarcely worth the efforts at strengthening. And thus the tears of friends, and perhaps the qualms of the scientific conscience are soothed by the reflection that as the leaves turn yellow they must fall; so the aged must die.

In a given case of unconsciousness of sudden onset, the result may be speedy death or recovery, depending very much upon the cause and the measures employed for relief. And this brings us at once to the importance of an accurate and speedy diagnosis in such cases.

A number of conditions accompanied by more or less complete unconsciousness are to be met with that may be confounded with uræmia. It is important that the symptoms and signs of these various states should receive the most careful consideration and study; for upon these we must often depend solely as data upon which to construct our diagnosis. The history and important facts bearing upon the case of course should not be lost sight of, since these frequently come to our aid opportunely in doubtful cases. Since, however, a state of unconsciousness precludes the possibility of gaining any definite oral information from the patient it becomes more necessary in these than in any other class of cases to be able to readily construct the diagnosis from the symptoms alone.

In order to differentiate accurately uræmic coma from the various conditions with which it is sometimes confounded I shall first endeavor to draw a correct picture of the various phases of uræmia itself; and passing from this I shall consider the various conditions with which it is more commonly confounded; and lastly, I shall present in tabular form the chief features of each, that the observer may at a glance study their differential features.

Without entering at present upon the much vexed question of the nature of the uræmic power itself—which still remains an unsettled problem—it should first be noticed that it usually expends its greatest force upon the nervous system, and therefore we must look to the nervous system for the most prominent manifestations of this disorder. So far as the central nervous system is concerned, it is a somewhat remarkable fact that the uræmic poison usually acts upon the sensory and motor centres in diametrically opposite ways. Upon the sensorium the tendency is towards abolition of function—and consequently tending to insensibility and coma; while upon the motor centre—the medulla—exaltation or stimulation is produced—tending towards convulsions. Coma and convulsions then are the most common results of the more intense action of the uræmic poison upon the central nervous system; but in less intense degree of action the uræmic poison often seems to reverse this order—on the sensorium to produce excitement, delirium, etc., and upon the motor centre to produce a mild and transient paralysis. This latter fact should not be lost sight of since in the first place it is perhaps not generally known that uræmic coma and convulsions are often preceded by paralysis; and in the second place the occurrence of paralysis may lead the physician to mistake uræmia for apoplexy—more than one such instance has come under my observation within the past year.

Uræmic coma is rarely of very sudden onset, but is preceded by certain well-marked symptoms for from a few hours to several days or even weeks. The most constant and prominent of these prodromata are, headache, nausea and vomiting, exalted reflex sensibility of the voluntary muscles, increasing drowsiness, more or less decided diminution of the volume of the urine, and a peculiar odor of the skin and breath—uræmic. Among the less common prodromata are, acute visual disorders, dyspnœa, distressing itching of the skin, restlessness by day and insomnia at

night, delirium, deafness, paralysis, and convulsions.

The headache is most often frontal or temporal if the underlying cause be acute renal trouble; most often occipital if chronic—as cirrhosis or granular contracting kidney. Headache is perhaps the most constant of all the early symptoms of uræmia, and it is often very distressing. It may be distinguished from ordinary neuralgia by its non-conformance to the evening exacerbations so constant in the latter.

Nausea and vomiting are scarcely less constant symptoms, and when present are often very obstinate and prevent the successful administration of medicine by the stomach. The exaltation of reflex muscular sensibility is observed in the frequent twitchings of certain groups of muscles—most often those of the face. The visual disorder may consist of acute amaurosis—the patient becoming suddenly deprived of vision; or a more gradual and less complete impairment of vision may come on which is most likely to become permanent. The first form is more common in acute renal disease; while the second form is more common in chronic forms of kidney affections. The acute dyspnœa occurs in two forms—the first closely resembling asthma, and the second due to pulmonary œdema and characterized by rapid respiration, 40 per minute or more. A third form of respiratory disorder of not infrequent occurrence is Cheyne Stokes respiration—which should not be confounded with the more regular and uniform slowing down of the respiration due to large doses of opium.

Restlessness is often very marked and not unlike the condition preceding delirium tremens, save that the apprehensiveness of danger so marked in the latter is absent. The delirium—or mental intoxication—when present is peculiar in certain respects. Upon fixing the attention of the patient closely he is usually quite rational, and replies to questions intelligently; but he is usually very forgetful—often repeating a question he has just asked and received a reply to.

Insomnia is a prominent feature of the uræmic state; "these patients rarely sleep well" save under the influence of a narcotic.

Paralysis is most common in the muscles of the face—usually of one side—and often involving the tongue. It often extends to the arm and leg. Impairment of sensibility in the affected part is rarely complete even when the motor power is entirely abolished. The attack often lasts less than an hour and rarely does it continue longer than twenty-four hours.

Let it now be supposed that the physician is called to see a case of typical uræmic coma, in which state the patient has been accidentally discovered and a hasty diagnosis is demanded. The appearance of the patient is somewhat pallid. This pallor is not the result of weakness of the circulatory forces as in syncope, but is rather due to some underlying renal disease. It is therefore an unhealthy, partly cachectic pallor—familiar to those who see much of kidney disease. Exceptions to this rule (the appearance of pallor) occur chiefly in cases of early cirrhosis of the kidney when the color of the skin may not depart in the least from the usual tint of robust and perfect health.

Apparently the patient is profoundly insensible; *in reality* he is rarely completely so in pure uræmia. Upon vigorously shaking the patient, or shouting in his ear, indications are observable that consciousness is not entirely abolished. He may indeed very often be made to speak, or to reply to questions asked in a loud voice—though usually in monosyllables. If unable to do this there will at least be observable upon close inspection some expression of countenance indicative of perception, if not of comphension.

Reflex sensibility of the voluntary muscles is still present and may be excited by percussion.

The pupils are somewhat dilated and the orbicularis responds to stimulants.

The breathing is often stertorous, but not deep and gutteral—the noise being made by the cheeks and lips not by the throat. The pulse is increased in frequency—90 to 120 per minute—is rather full, often hard and tense. The temperature is raised, marking 100° to 102° F. Œdema may or may not be present; if present it is more prominent about the malleoli and eyelids.

If the urine be drawn—and it always should be in doubtful cases—it will usually be found highly colored, and to contain albumin. The odor of the breath is characteristic—uræmic.

Such are the more trustworthy symptoms of uræmic coma, and they are essentially different from those of most other states of insensibility as will be presently seen.

If to these we are enabled to add the history of the case, we shall have many of the premonitory symptoms already considered as additional guides.

The condition most commonly confounded with uræmic coma is hæmorrhagic apoplexy: and since it is often the outgrowth of the same underlying cause as uræmia—vaso-renal change—it should receive most careful consideration.

In recent typical apoplexy the insensibility if present at all is usually complete—it being impossible to arouse the patient or to elicit evidences of perception or comprehension. This state may be reached gradually the same as in uræmia, though usually much more rapidly. The pupils may be contracted or dilated, and in this respect they are exceedingly variable. Inequality of the pupils—most common—is the more trustworthy sign. If the hæmorrhage occur in the pons varolii the pupils are contracted. The face may be pale but the general hue of the skin is usually normal. The respirations are increasingly stertorous and gutteral in character—the sound being made in the throat as in heavy deep snoring. The pulse is reduced in frequency, sometimes reaching 60 or even 50 beats per minute, and it is "labored." It is increased in volume and marked by tension. The temperature is usually subnormal, often marking 96° F. Paralysis is usually present of the hemiplegic order. There are rarely true convulsions with apoplexy; the patient may fall and muscular spasms of a clonic order may follow, and even the tongue may be bitten, but it is not deeply lacerated as in epilepsy or in uræmia.

It should be remembered that in apoplexy several of the more important symptoms vary with the stage

of the attack. Thus very early, the consciousness may be preserved and insensibility may come on slowly. After a few hours the clot may and often does excite inflammation, thereby raising both the pulse and the temperature. Perhaps the most constant and valuable diagnostic symptom of apoplexy is hemiplegia. If actual paralysis cannot be made out definitely, a close scrutiny will yet nearly always reveal "one-sided symptoms" of some kind. If the arms be raised, for instance, and then permitted to drop, they do not fall uniformly.

Since apoplexy from cerebral hæmorrhage is confessedly the most difficult of all conditions to differentiate from uræmic coma, it is proper that they now be considered side by side, as it were, in a comparative sense. If the uræmic coma be the result of chronic Bright's disease its history is often identical with that of apoplexy. The patient is beyond middle-age and well nourished. The left ventricle of the heart is more or less hypertrophied; indicated by heaving impulse of apex beat; accented second sound of the heart most distinct near and to the right of the sternum in the second interspace; also extended area of cardiac dulness. The arteries are hard—atheromatous—and the pulse is marked by decided increase in tension—well shown by the sphygmograph. Renal changes are almost as common in one case as in the other and, therefore, albuminuria will not form a safe distinguishing guide here. The premonitory symptoms are much alike in each case, viz.: vertigo, visual disorders, epistaxis, drowsiness, pain in the head, and vomiting. Indeed the very time of attack coincides, being most frequent after some unusually active or long continued exercise.

Generally speaking, the age of the patient is of service as an aid in distinguishing doubtful cases. Thus, apoplexy is almost limited to middle and advanced life. Albuminuria in the aged is for the most part due to contracting kidney—cirrhosis—and my own obervations have shown me that contracting kidney more often gives rise to convulsions without than with coma.

On the other hand if the patient be under 30 years of age, apoplexy would be improbable, and uræmia would, moreover, be less likely to be overlooked, since it would then as a rule depend upon an acute renal disease, the symptoms of which could scarcely escape observation.

Passing now to a more minute analysis of the chief symptoms of uræmia and apoplexy. It has already been stated that paralysis is the most constant and characteristic indication of apoplectic coma. Its chief features are its completeness, permanency and one-sided character—hemiplegic. It comes on before or with the loss of consciousness, and it lasts through the attack with little or no variation: and if the patient recover it is the last symptom to yield, often in fact becoming permanent. Uræmic paralysis as a rule precedes the coma for some hours or days. It is transient, often lasting but half an hour, rarely longer than twelve to twenty-four hours, and consequently is rarely present *during coma*. While it is one-sided, it is rarely so extensive as in apoplexy—involving but the face or the face and arm. I have in a few cases seen complete hemiplegia (motor).

The pulse in apoplexy is slowed in the first stage, and usually does not become accelerated for many hours—until inflammation arises. In uræmia the pulse is accelerated from the first, before coma comes on, so that however early we meet with uræmic coma the pulse is increased in frequency—90 to 120. The temperature follows much the same course in each. In apoplexy it is reduced in the first stage. It remains sub-normal for a variable time, always for hours, then it slowly rises, and in two or three days it may reach 100° to 103° F.

In uræmia the temperature rises before coma comes on usually reaching to 100° to 102° F., and fluctuating between these points as the attack continues.

In convulsions due to uræmia the spasms are tonic, general, and usually repeated with more or less increasing frequency. As a rule the convulsions precede, and are several times repeated before the appearance of coma, the latter coming on slowly and gradually, hours usually elapsing before its full development. If unprotected, the tongue is bitten and often badly lacerated.

In apoplexy, as previously stated, true convulsions are rare; when present they are mostly clonic, rarely repeated, and precede the coma, the latter rapidly following the fall. The tongue may be bitten but is not deeply lacerated. In apoplexy the convulsions may be unilateral; in pure uræmia they are never so.

The loss of consciousness in apoplexy is more rapid, more profound, and less variable than in uræmia. An hour or so after the seizure, the patient is often completely comatose in apoplexy; and if he recover consciousness it most always requires several days for its accomplishment. In uræmia unconsciousness creeps on slowly in a fitful, vacillating manner; and even after apparently complete unconsciousness is reached, there may be intervals of more or less consciousness until very late—near death. In uræmic coma I have rarely found complete abolition of perception save very near death, and there is pronounced irritability of the voluntary muscles upon percussion. In typical apoplectic coma abolition of consciousness is usually complete, and, moreover, when established the insensibility continues unchanged until death or general improvement occurs. In apoplexy the respirations at first are as a rule easy and natural. Sooner or later they become deepened, and finally stertor appears of a deep, noisy gutteral character. To one in an adjoining room the noise very much resembles loud snoring. In uræmia the respirations at first are also easy and natural. Should œdema of the lungs be present, however, which is not uncommonly the case, the respirations become rapid—40 to 50 per minute. Noisy stertor is rare in pure uræmic coma, and the little noise present is made with the cheeks and lips—a soft puffing noise. Gutteral stertor may appear near death; as it often does upon the approach of death from many causes other than uræmic.

If any information of value is to be gained from the pupils, it is mostly in the earlier stages of uræmia and apoplexy. In the former the tendency is to di-

lation of the pupils; sometimes, indeed, they are so widely dilated as to give rise to suspicions of belladonna poisoning. In apoplexy the pupils are very variable. Sometimes one pupil is dilated and the other contracted, or one pupil may be normal and the other one either contracted or dilated. Inequality is the more common feature. It should not be forgotten that on the near approach of death from most causes, the pupils often become widely dilated.

Having now reviewed the chief differential features of uræmic and apoplectic coma, I shall next take up the subject of epilepsy, and note in passing the differential features of its symptoms from those of uræmia. First, as to the history. It will of course be unusual to meet with a first attack of epilepsy, and therefore it will be generally known by the friends that the patient is subject to "fits."

Epilepsy is a disease of the young—75 per cent. of the first attacks occur before 20 years of age. The attacks are most common at night, unlike in both apoplexy and uræmia. The attack is always sudden, a few moments at most constituting the prodromal stage. Convulsions always precede the coma, and they are of the tonic order. Consciousness is completely abolished from the beginning; even before the convulsions begin. The convulsions are rarely repeated the same day, more often several days or weeks elapse before their return. In uræmia, it will be remembered, a few hours at most elapse between the convulsions when repeated. In epilepsy consciousness gradually returns after the convulsive attack, the average period of coma being about one hour, unless the attack occurs at night, when it is much longer. In uræmia unconsciousness does not usually occur until after several attacks of convulsions, and it gradually deepens instead of wearing away after the fits.

The coma following the epileptic convulsions is much like a sound sleep; after the first few minutes, as a rule, the patient can easily be aroused. There is rarely true paralysis and, when present, it is probably due to cerebral hæmorrhage. It is true there is nearly always more or less loss of power after an epileptic convulsion, and in the arms and limbs this may be apparently complete; but it wears away in a few minutes or hours, being a weakness or prostration rather than a paralysis. The coma of epilepsy is most often a confused mental state from which the patient may be easily aroused. There is usually unsteady stertor, "coming and going," guttural in tone, and the unconsciousness varies greatly both in intensity and in duration. In epileptic coma reflexes are not abolished; the pupils are normal, the conjunctiva is sensitive, and the orbicularis responds. The skin is usually bathed in perspiration—at first warm, dusky and purple, but gradually cooling and becoming pale.

The temperature does not vary much from normal; perhaps a rise of half a degree may be noted. If, however, the convulsions be rapidly repated, the temperature may rise above 100° F.

The pulse in epileptic coma is rather small and feeble, though regular, and it may be slightly increased in frequency. If a tracing be taken with the sphygmograph it shows the features of dicrotism. It will be seen from the foregoing description that epilepsy does not closely resemble uræmia, save in the convulsive seizures, and these are strikingly similar, except in their frequency of repetition. Practically, it is only those cases of epilepsy in which the convulsions are rapidly repeated, and the coma consequently deep and prolonged, that are likely to be confounded with uræmia. Happily, such attacks are rare, and for the most part due to traumatic causes which rarely escape attention.

We have next to consider the coma depending upon alcoholism, often one of the most difficult conditions to diagnosticate. There are, indeed, few states of unconsciousness with which it may not be confounded. Drunken stupor has even been mistaken for syncope and, strangely enough, the unfortunate patient has been made to swallow brandy for the purpose of reviving him. The coma of drunkenness varies in intensity according to the dose of alcohol taken, and the susceptibility of the patient to its influence. There may be only quiet stupor, from which it is easy to arouse the perceptive and volitional powers of the patient; or all the senses may be abolished, the patient being completely unconscious, stertorous, comatose and anæsthetic.

In typical drunkenness the breath is usually loaded with alcohol, and this is readily recognizable by the odor. It is especially so if the debauch be due to spirits. The odor of alcohol in the breath, while it is a strong presumption of drunkenness, yet must not be absolutely relied upon as the cause of unconsciousness, since epilepsy or apoplexy sometimes supervenes upon a fit of alcoholism.

The respirations are heavy and often stertorous in drunkenness. The stertor, when present, is variable and intermittent. The respirations are deep-drawn and less frequent than normal. The stertor is similar to that of heavy sleep. The expression of countenance is vacant; sometimes the features are suffused and bloated; the lips are livid; the pupils are dilated, and the conjunctiva is much injected.

The pulse is small and rapid, and the heart's action is feeble. The temperature is usually subnormal. The skin is usually covered with cold, clammy perspiration. Vomiting is common, and evidences thereof should be sought for about the mouth or clothing. In some cases it is possible to arouse the patient to some degree of consciousness by shaking or pinching him. He may be made to speak, to give his name and address, and if so it is to be noticed that the articulation is thick, drawling and indistinct. He awakens confusedly and relapses again into apparent sleep. Sometimes, however, the patient becomes irritable upon disturbance and indulges in swearing. This is often the diagnostic sign relied upon by the police patrolman, who seeks to elicit it by sharply striking the sole of the shoe with his baton; an excellent means of exciting reflexes, but an untrustworthy diagnostic of alcoholism, since patients in apoplectic conditions will sometimes resent such disturbance both verbally and muscularly. It has been stated that if the patient be aroused sufficiently to be able to speak, the articulation is thick and indistinct. This indicates a disproportionate action

of alcohol upon different centres of the nervous system, which is often very marked.

Tactile sense and motion are usually in reality more disturbed than is cerebral perception and consciousness. In other words, coördination of muscular action and special sense are more impeded than is cerebration. The patient often reasons so well with himself that he requires to be told that he is drunk, unless he attempts to walk, when difficult coördination of muscular motion teaches him that he is intoxicated. The medulla and spinal cord, therefore, are more deeply anæsthetized than is the cerebrum. In certain individuals these features of alcoholism are especially prominent; indeed, in such the intellectual faculties are actually sharpened, even when motor coördination is greatly impaired. In such cases most brilliant reasoning powers are manifested or able speeches delivered even though the subject be unable to stand without support. It will be remembered that, in describing uræmia, it was stated that the uræmic poison tended to a directly opposite action upon the central nervous system, viz.: to stimulate the spinal system and medulla, and to depress the cerebral centres. If, therefore, the patient can be in a measure roused, these distinguishing features should be carefully observed in all doubtful cases.

Dr. von Wedekind has recently brought forward[1] a new test of drunkenness for which he claims "infallibility." "By simply pressing on the supraorbital notches with a steadily increasing force you may, with certainty of success, bring an unconscious alcoholic to his senses, and thus differentiate on the spot between alcoholic and other comas." Incredible as this may at first sight seem, Dr. von Wedekind has brought forward a record of 137 cases of alcoholic coma gathered from the ambulance service in which his test has been applied, and in the nine cases of failure of the test out of the whole 137, each one was accounted for by subsequent discovery of some additional cause of the coma.

From what has been already stated as to the action of alcohol upon the central nervous system, it would be expected that convulsions would be rare from this cause, and such in fact is the case. A single convulsion does sometimes occur during, or more frequently preceding alcoholic coma, but rarely are convulsions repeated in pure alcoholism as in epilepsy or in uræmia.

It seems necessary, in passing, only to mention the possibility of confounding syncope or hysteria with uræmic coma. These affections are so familiar to those in general practice, and the symptoms are so well known, that they are not likely to be mistaken for any of the states already considered. In syncope especially the unconsciousness is so brief, and the return to consciousness is so complete, that nature soon reveals the diagnosis; while in hysteria the symptoms, though exceedingly variable, yet possess a general definiteness familiar to all. It remains, therefore, but to consider the subject of poisoning as contrasted with uræmic coma. Although various narcotics produce a state of insensibility and coma, as well as death in large doses, the effects of opium alone will be considered here, since it is the narcotic for the most part selected for destructive purposes, as well as the one, from its wide range of use, which most commonly gives rise to accidents.

The physiological action of opium and its preparations upon the human organism in medicinal doses is well known. It is only with the larger doses—approaching lethal—that we now have to do; since it is only the deep narcotism induced by decided doses that constitutes the coma likely to be confounded with uræmia.

In coma due to opium the patient may be aroused sometimes to a greater or less extent, but quickly lapses into stupor. In late stages it is difficult, if not impossible, to rouse the patient. The pupils are minutely contracted and insensible to stimulation. The respirations become slower and more shallow, generally feeble, and sometimes stertorous. They may become reduced to 10 per minute or under. The frequency of the respirations is perhaps the best gauge of danger, since in most cases of death from opium the direct cause is asphyxia from paralysis of the respiratory centres. The odor of opium is usually present in the breath. The pulse is slow and feeble; the face is shrunken, pallid, cyanosed, and the expression is ghastly. The eyes are heavy and the lips are livid. The skin is warm and moist with perspiration, and often intensely itching, especially about the nose.

In differentiating the coma of opium from that due to other causes, the special features to be noted are, *first*, the contracted state of the pupils. This is almost pathognomonic, and is only absent at the approach of death. Hæmorrhage into the pons Varolii, as first pointed out by Wilks, induces a similar contraction of the pupils; but this is almost the sole morbid state that produces the uniform and extreme contraction of the pupils similar to opium narcotism. *Second*, the slowing down of the respirations is almost characteristic of opium coma. It is to be borne in mind that, in the early stage of opium narcosis, the respirations are rather hastened; eventually, however, if the dose be large, the respirations become decidedly less frequent. Cheyne-Stokes' respiration, which is very common in uræmic states, should not be mistaken for retarded respirations due to opium. The distinction is easy, and it is only necessary to mention the possibility of mistake to guard against it.

Convulsions are rare from opium. In many of the lower animals the action of opium constantly tends to produce convulsions, but in man this result is chiefly confined to children. The history is important mostly in an exclusive way—the symptoms of the states already considered, as a rule, being absent. Aside from this, opium poisoning is most frequent in the young.

It should be borne in mind that, in the consideration of the various states of unconsciousness described in this paper, the aim has been to depict the more trustworthy features of typical cases. Variations from these types are to be met with, even in uncomplicated cases, which tax the skill of the most acute diagnostician.

[1] N. Y. Medical Record, August 27, 1887.

DIFFERENTIAL TABLE.

	URÆMIC COMA.	APOPLEXY.	EPILEPSY.	ALCOHOLISM.	OPIUM COMA.
Age.....	Most common in the young.	Almost confined to middle and advanced life.	Most common under 30 years of age.	Common at all adult ages.	Most common in the young.
History	Previous attacks rare. Bright's disease present.	Previous attacks rare. Heredity marked; granular kidney common.	Previous attacks the usual feature.	Previous attacks common.	May be habit or accident.
Appearance	Pallid, cachectic.	Normal.	Dusky, purple, gradually becoming pale.	Features suffused, bloated, lips livid, expression vacant.	Features shrunken, pallid, cyanotic, expression ghastly.
Pulse	Increased 90 to 120 per minute.	Slowed; 60 per minute; full.	Slightly increased, small, feeble, and dicrotic.	Increased, feeble, small.	Usually slowed, feeble.
Temperature.	Increased from beginning 100° to 102° F.	Lowered; 96° F. or lower.	Increased slightly; 99° F.	Lowered somewhat.	Somewhat lowered.
Pupils	Tend to dilate.	Unequal.	Normal.	Dilated.	Contracted.
Respir'tions	May be hastened or not; stertor labial.	Slow, stertorous, gutteral.	Stertorous, gutteral, unsteady.	Deep, slow, stertor intermittent.	Slow, shallow, feeble.
Special Features.	Unconsciousness not complete; peculiar odor of breath; convulsions recurring; frequent pulse; temperature increased; albuminuria.	Slow pulse; complete insensibility; unequal pupils; hemiplegia; gutteral stertor.	History of former attacks; unconsciousness not complete; coma of brief duration; great muscular relaxation.	Alcoholic breath; vomiting present; injected conjunctiva; swollen features; supra-orbital pressure rouses the patient.	Contracted pupils, opium breath, slow respirations; cyanosis; expression ghastly.

It should likewise be remembered that two, or even three of the causes considered may combine to produce a given state of insensibility, thus bringing about considerable confusion of the symptoms. Thus, a patient the subject of granular kidney—interstitial nephritis—may take a dose of opium, the tendency of which will be to suppress the urine, and uræmia may be the result. Furthermore, repeated uræmic convulsions may induce cerebral hæmorrhage, since all the conditions are favorable to such result in patients with granular kidneys. In such a case we have the symptoms of apoplexy added to those of uræmia, which latter, in turn, arose from the effects upon the kidneys of the opium. Again, the ingestion of a large dose of alcohol may precipitate an attack of convulsions in an epileptic subject, and in turn the convulsion may lead to cerebral hæmorrhage. The possibility of mixed cases should therefore be kept in mind. Happily, such cases are comparatively uncommon, but when they do occur they are only to be detected by careful study of the leading symptoms of each stage of the attack, since one cause usually supervenes upon another, rather than all occurring simultaneously.

In conclusion, it is hoped that the appended differential table may aid the diagnostician by presenting at a glance the leading features of each of the comatose states considered in this paper.

163 State St., February 27, 1888.

GUNSHOT WOUNDS OF THE ABDOMEN.

Read before the Chicago Pathological Society Feb. 13, 1888.

BY J. B. MURPHY, M.D.,
OF CHICAGO. SURGEON TO COOK COUNTY HOSPITAL.

Case 1.—H. M., age 26, admitted to the hospital at 8 P.M., June 16, 1886, suffering from a bullet wound of abdomen. I saw him at 10 P.M. He was suffering but little from shock; pulse 90; temperature normal; no pain. On examination, I found a large bullet wound half an inch below umbilicus, and an inch to the right of median line. I decided to make laparotomy, and assisted by Dr. E. W. Lee, and the House Staff of the Hospital, I made the median incision three and one-half inches long. I began by examining the small intestine and repairing each wound as it was exposed by first paring off the ragged edges with a scissors, then inserting a continuous catgut suture in the mucous membrane, then in the peritoneal covering, the first row of sutures being entirely covered by the second. This was continued until the eleven openings were united. I found that the bullet had passed through the posterior peritoneal wall close to the pelvis of left kidney; cleansed the peritoneal cavity with a warm ½ per cent. carbolized water, united the abdominal peritoneum behind with catgut, also the opening made in the anterior peritoneal wall by the bullet, sewed the peritoneum at the incision with a continuous catgut suture, the muscular wall with deep silk suture (interrupted), dressed the parts with iodoform gauze, then carbolated gauze and borated cotton. Operation lasted two hours; patient's condition good after the operation was completed; pulse 110, and of good volume.

The following morning the House Surgeon reports: "No vomiting, patient slept the greater part of the night, did not complain of pain; pulse 110; temperature 99½° F.; no thirst or tympanites. At 7 P.M. pulse 96; temperature 99° F. No vomiting and no pain; says he is hungry." I called at the hospital the following morning and found that the patient had died suddenly at 7:30 A.M., after spending a quiet and painless night. At 6 A.M. he complained of weakness and said he was fainting

Autopsy.—Found heart and lungs normal; abdomen filled with blood. The suture in post-peritoneal wall torn through, a large quantity of blood in

the retro-peritoneal region, an opening in the left renal artery from which the hæmorrhage came.

The wounds in the intestines were *all completely united, being both air and water tight*; in the majority of these the catgut could not be seen on account of the deposit of reparative material placed about them. No evidence of impending gangrene. Though the patient only lived thirty-six hours after the operation, the peritoneum had already restored itself, and made the openings impervious. No evidence of beginning peritonitis. Cause of death hæmorrhage from renal artery.

Case 2.—G. J., colored, aged 22, admitted to hospital May 24, 1887. Said he was shot in the abdomen about two hours previous.

On examination, a bullet wound two inches to right of median line and an inch above umbilicus was found; dulness in the lower portion of abdomen. Pulse 66, of good volume; some shock. I decided on an exploratory incision; found the abdomen full of blood; the bullet passed from the abdominal wall into the margin of the liver, passing through its substance almost directly backwards and into the muscles of the back. The hole in the posterior surface of the liver could be felt by passing the hand around the liver. There were no perforations of either stomach or bowels. The abdomen was cleansed, about two pints of blood and clots removed; the hæmorrhage had ceased. The opening made by the bullet in the abdominal wall was closed with catgut suture from the inside, abdominal peritoneum united with catgut suture, and the muscular wall and skin with silk. Dressed antiseptically. Operation lasted thirty minutes. Patient in good condition.

May 25. Slight tendency to vomit during the night and some pain, but feels well this morning. The patient's temperature did not reach 99° from that time on, nor did he have a single untoward symptom until June 3, when he complained of pain in the back, and on examination a small swelling just over the supposed position of the bullet was found. He was anæsthetized and the bullet removed, also a small quantity of pus. Convalescence was rapid and patient was discharged June 13.

Case 3.—Geo. S., colored, aged 57, musician (but more of a drunkard) by occupation, admitted to hospital August 23, 1887, at 3 P.M. Was shot with a 38 calibre bullet a few hours before, his assailant standing fifteen feet in front and a little to the right. The bullet entered on a level with the 9th rib, one and one-half inches in front of the axillary line. Urine contained no blood. Pulse 78, full and strong; no shock; wound had been probed before patient came to hospital.

Three hours after the injury patient was anæsthetized, and an incision was made three inches long downwards and inwards from the point of entrance of the bullet towards the umbilicus. The bullet was found to have passed through the liver three-fourths of an inch from its lower margin; also perforating the transverse colon on its convex portion about one-half inch from its beginning, leaving a bridge of intestinal tissue half an inch in length between the point of entrance and exit, then passing into the muscles of the back an inch to the right of the spine.

The bridge of intestine between the two openings was cut through, the edges of the wounds freshened, making an opening about one an one-half inches in length. The mucous and muscular layers were first united with a continuous catgut suture; the peritoneal covering was then sewed over it with a continuous catgut suture; about half a drachm of fæcal matter escaped from the intestine after the opening was enlarged, but none before. Abdomen cleansed with boric acid solution, and blood-clots removed. Parietal peritoneum united with continuous catgut suture. Muscular and continuous tissue united with interrupted silk suture. Dressed antiseptically. Operation lasted about three-fourths of an hour. Patient came from the operating table in good condition; pulse 90, and of good quality. 7:30 P.M., pulse 78; patient vomited considerable in the afternoon; some pain in the wound.

August 24. 8 A.M., pulse 72; temperature 99°; slept considerable; ordered ½ ounce doses of brandy every two hours with carbonated water. 7 P.M., pulse 76; temperature 100.2°; vomited up to 4 P.M., but not since; feels hungry and thirsty.

Augugt 25. A.M., pulse 74; temperature 98.5°; slept well; no vomiting. From this time on the patient made a rapid recovery. The first dressing was removed September 2; complete primary union. Sutures taken out and wound redressed. Patient discharged cured September 16. Have seen the patient since, and he is feeling as well as he ever did.

Case 4.—J. H., aged 26, was admitted to Cook County Hospital on December 1, 1887, at 8:30 A.M., for gunshot wound of abdomen. On examination a wound was discovered on the right side nearly in the axillary line, and just below the costal cartilages, apparently penetrating down and in. The edges of the orifice were blackened and powder-stained, and another opening on the left side midway between the costal cartilages and the level of the umbilicus, was found. The patient was suffering profoundly from shock.

Under ether, and after the patient had walked two miles, the wound on the right side was enlarged, when it was found that the bullet had entered the peritoneal cavity, notching the anterior margin of the liver in its downward course. The usual median incision was made, revealing two wounds in the stomach with extravasation of food into the abdomen (small quantity), and one in the mesentery; some bleeding from the latter. These were all carefully sewed up with deep and superficial catgut sutures. The intestines were drawn out and enveloped in warm towels. No wounds were found in them. The peritoneal cavity was thoroughly washed out with warm solutions of boric acid, and the incisions sewed up with silk after securing the peritoneum with catgut. A rubber drain was passed through the wound on the right side and brought out on the back above the crest of the ilium. Operation lasted 70 minutes; patient very much collapsed.

Through an error the patient was given two hypodermic injections of one third grain of morphia, and

he showed severe symptoms of opium poisoning, and did not become conscious until 6 P.M., some eight hours after the operation. The pulse became rapid and more feeble. At 9 P.M. the patient became delirious and died at 11:30 P.M. There is no doubt that the opium contributed somewhat to the unfavorable outcome in this case; also the prolonged operation. Autopsy showed the abdomen clean and no blood in it.

REMARKS.—There are no positive symptoms of perforation of the stomach or bowels, *i.e.*, if we do not consider the mere fact that a bullet passed through the abdominal cavity *per se* a positive symptom of perforation of the viscera or one of the large vessels. And that we should so consider it is proved by the results of Dr. Parkes' experiments in 38 bullet wounds of the abdomen in dogs, in which only two escaped injury of the stomach and bowels, and in one of those there was considerable hæmorrhage, making only about 2.5 per cent in which the viscera escaped. Is there any other sign in surgery upon which we act and consider it pathognomonic where a greater percentage of the cases conform with the law? None that I know of. With this fact staring us in the face, is it not the height of presumption for us to hope that the viscera are not injured after a bullet has traversed the abdomen? Indeed, the symptoms of shock were only slight, except in two cases, and in one of them it was due to hæmorrhage.

In *Case 4* there was no vomiting of blood to indicate a wound of the stomach. At the International Medical Congress it was suggested by the first speaker on that subject "that no operation should be performed until such time as fæcal matter appeared at the external wound." This, of course, is absurd, for the food of fæcal material does not escape from the bowel at once after the injury, but it is principally on manipulation that we get an immediate escape, *i.e.*, a primary escape of the contents of the alimentary canal. Nature prevents this escape by an ectropion of the mucous and muscular coats plugging up the openings temporarily. Dr. Gross states that "extravasation takes place in all cases," but he does not mention the period of time that elapses before it takes place. This is true of the stomach as well as of the bowels, as in *Case 4* not more than a drachm of fluid and food escaped, notwithstanding the stomach contained a large quantity of food, the two openings would each admit the index finger, and the patient was about for eight hours after the shooting.

In Dr. Parkes' experiments fæcal matter did not appear at the external opening in a single case. This temporary plugging of the opening by the mucous membrane accounts for the tardy appearance of peritonitis in some of the cases of perforating wounds. When shall we operate and when not? There are many interesting cases reported of perforating wounds of the abdomen where the patients recover without operation.

Hennen reports a case shot through the abdomen with a ramrod at Badajos, 1812. In the late rebellion Private Manypenny, as his surgeon records it, "had a ramrod driven plump through his guts." In the Franco-Prussian war, five cases of recovery are reported in one corps, but I cannot find any report of the number of deaths. Larrey, in a long experience, reports only one case of penetrating wound without immediate serious results, and afterwards the bowels were found to be contused. These few remarkable cases are threadbare from being quoted. Abernethy used to shake his head when he had a case of this kind and say, "Nature will have nothing to do with wounds of the small intestines." Bell says, "We announce them as fatal." Sir William McCormac says that in cases of perforation the median incision should be made as for any other laparotomy, and the bowels examined; but he says, "if a portion of the bowel protrudes from the opening and is not wounded, it should be returned and the opening sewed up." He goes just half way in the right direction and then falters. How can Sir William McCormac tell but that the bowel may be wounded three or six inches from the point of entrance of the bullet? Not any more than he can tell from the examination of the external wound how many perforations there are in the bowels, and that it would be absurd for a man to attempt the latter is thoroughly demonstrated by the excellent and well-known experiments of Dr. Charles T. Parkes on dogs. He has opened up the field in a most thorough manner, and demonstrated to us what can be expected from a bullet passing into the abdomen. *If we will not act it is our fault. Ostrich-like, shall we stick our heads in the sand?*

The light that has been thrown on the subject from numerous experiments, and the results following the treatment of cases influenced thereby, puts us in a position where we cannot escape the responsibility from the charge of malpractice, when we stand idly by and allow our patient to sink from a septic peritonitis or bleed to death from a wounded vessel. We, as scientific men, should act fearlessly, and having done so we have the consciousness of having fulfilled our whole duty.

All the preparations should be as thoroughly antiseptic as for laparotomies for other diseases, *i.e.*, the disinfection of hands, instruments, etc.

The first incision should be to enlarge the opening made by the entrance of the bullet down to the parietal peritoneum, to be sure that the ball entered the abdominal cavity, and that it did not rest on the peritoneum, as it did in a case of mine. The second incision should be, in the majority of cases, made in the median line, as it allows of a greater latitude for the examination of the organs; but in some cases it will be impossible to bring the wounded bowel to the opening in the median line. When the wound is outside of the mammary line the incision should be over the entrance of the bullet, and enlarged from that point as may be deemed best,—that is, in large, broad-bodied men. In all of my experiments upon the cadaver I was able to reach the wounded bowel in the most remote parts of the abdomen from the median incision. The examination of the organs should be methodical and rapid, beginning with the cæcum and examining the small intestines upwards, being careful to keep the bowels as near their normal position as possible, and not expose them to the

air, repairing each opening as it appears. If the exit opening in the peritoneum can be found, sew it with silk to prevent a return of pus into the abdominal cavity, should any form in the tract or around the bullet. The number of openings in the bowels may vary greatly, and too great care cannot be exercised to make certain that none escaped notice and remain open, causing a fatal outcome.

Should the mesentery or omentum be wounded great care must be exercised in ligating the vessels around the opening by suturing the proximal side of the mesentery with catgut, using a full curved round needle (Czerny), also removing all blood-clots found between both layers of peritoneum in the mesentery.

Another important point is to look for hæmorrhage in the retro-peritoneal cellular tissue where the ball makes its exit from the peritoneal cavity. Should there be oozing from this opening it should be enlarged and the vessels closely examined, and if injured or oozing ligate them. Had I done this in my first case, I am quite sure the fatal hæmorrhage would have been avoided. I may also mention a case in the hands of one of my colleagues where fatal hæmorrhage occurred from a vein in the retro-peritoneal cellular tissue in the neighborhood of the left kidney. The patient died of exsanguination on the third day. Autopsy showed the source of the hæmorrhage; also that the patient had no peritonitis.

The suture to be used is one that (1) can be easily and rapidly inserted; (2) that will keep the serous surfaces in position for forty-eight hours without causing a pressure atrophy; (3) that no suture that is exposed on the peritoneal side of the bowel shall pass through to the mucous surface; (4) that there shall be as little tension on the suture in the peritoneal layer as possible; (5) they shall be aseptic; (6) they shall diminish the calibre of the bowel as little as possible; (7) serosa shall come in contact with serosa.

The materials that at once suggest themselves to fill all the requirements are chromated and juniper catgut, softened in carbolized water and sublimated silk (1:1000). I used carbolized catgut in my cases, but since that time the reports of Professor Theodore Kocher's experiments and operations in Berne, have convinced me that catgut prepared in carbolized oil or alcoholic solutions of the same are not reliable and frequently septic. The details of the same can be found in the *Correspondenz-Blatt für Schweizer Aerzte*, and are well worth perusal. The best mode of insertion to supply the above mentioned requirements are (*a*) in longitudinal and small transverse wounds, a double row of continuous sutures with a round (Czerny) needle, the first approximating the mucosa, and the second the serosa, the latter covering the first from sight; (*b*) in large transverse wounds the Lembert suture should be used. The first can be inserted very rapidly, and the tension on the serosa is lessened by the approximation of the mucosa; it will remain unaltered forty-eight hours and not cause pressure atrophy, and the serosa unites in from twenty-four to thirty-six hours, as shown by experiments on animals, and in my first case. The continuous suture exposed on the serous surface is not exposed on the mucous surface, as in Jobert's suture, but it would diminish the calibre of the bowel in transverse wounds, and for that reason, and that only, is Lembert's suture used in large transverse wounds.

A portion of the bowel must be excised when more than three-fifths of its calibre is destroyed, otherwise there will be a stricture at that point. This can readily be accomplished by invagination with a rubber supporter in the intussusceptum, as suggested by Dr. N. Senn, and a continuous suture approximating the serosa in its entire circumference. This may be further supported by the plastic operation on the omentum to support the bowel in this position and insure adhesions (Dr. Senn). When there are two large openings which can be approximated and leave a fistula, allowing the contents of the bowel to pass through the fistula and the loop of bowel to be retired (if the loop is short, that is, less than four feet in animals), the openings should be approximated by Dr. Senn's bone-tablets, or by the suturing process suggested by one of the surgeons in the late Rebellion. Dr. Reybard's wood-plates may be used and the opening approximated to the abdominal parietes. The danger when the bone- and wood-plates are used is that they cause pressure atrophy. These advantages are (1) the rapidity with which they can be inserted, Dr. Senn claiming that he can close the opening in ten minutes; (2) the certainty with which they approximate the serous surfaces and retain them in their position.

Toilet.—Remove the blood-clots and escaped contents of the viscera with a sponge; wash out the abdomen with a solution of boric acid until such time as it returns clean from the external wound; replace the bowel as near the normal position as possible, and spread the omentum over the bowel. If you fear there is still remaining foreign matter, it would be better to put in a Mikulicz drainage than to lose much time in trying to cleanse the abdomen and producing a great degree of shock from which the patient cannot rally. *Above all things avoid profound shock.*

THE EFFECT OF OPIUM ON THE UNBORN CHILD.

BY C. E. RUTH, M.D.,
OF MUSCATINE, IOWA.

Opium is at once one of the oldest and most useful of drugs, as well as one of the most potent agencies for harm. Its well-known capacity for relieving pain of almost every variety and grade of severity has resulted in its almost unrestricted use where the relief of pain is a prominent indication in the treatment of disease. Its property of relaxing both voluntary and involuntary muscular fibres, as well as the relief from pain, has resulted in its employment very largely in threatened premature deliveries.

But there are at times contra-indications to its use and limitations in its utility, especially its remote effects. These we too frequently lose sight of or disregard. Authorities lay great stress upon care in the administration of opium to *very young* children, but

where can be found anything in regard to its effects on the *unborn child* when administered to the mother? We are told that $\frac{1}{100}$ of a grain of opium has produced convulsions in children, and death by convulsions has been produced by very minute doses; also that the very young child is proportionately much more susceptible to the action of opium than the adult; but is this susceptibility just developed at birth or does it exist before? I think it exists before birth, and that it is as strongly marked as it is after delivery; and in the absence of the slightest evidence to the contrary will proceed to furnish the evidence for my views, which are based on evidence elicited from observation of the effect upon the unborn child of the administration of large doses of opium to pregnant women for painful neuralgic affections, including gastralgia, and in threatened premature labor. The question would be immediately asked, what evidence could you obtain of any effect upon the unborn child? We are told that opium produces convulsions and death by convulsions in young children; then, may not the unborn child have convulsions when we overload the blood circulating to its unstable nervous system with a poison whose characteristic effect, in but a few hours at least, in case birth should take place, is conceded to be the production of convulsions?

In case convulsions do occur *in utero*, have we any possible way of determining the fact? Given a case of advanced pregnancy in which the physician is administering large doses of an opiate to the mother, and she begins to complain of tremendously violent motions of the child, such as she never knew before, and the physician, by placing his hand on the abdomen, detects motions of the child apparently many times more violent than usual, and so severe as to cause the mother to scream aloud in agony and say the movements are unbearable—this is repeated in numerous cases, and he then remembers the characteristic effect of the drug on young children; then he finds that these powerful motions in each case accompany the full effect on the mother of the administration of large doses of opium; it seems to me we are very slow in reasoning from cause to effect if we do not come pretty soon to some opinion in regard to their relation. Do we get a sufficient amount of opium into the mother's circulation in administering full medical doses to her to send a proportion large enough to the child to produce an effect on the child *in utero* that $\frac{1}{100}$ of a grain has been known to produce on the child soon after delivery, provided they are equally susceptible in the two states? Estimating the weight of the mother at 120 lbs., and the child at 6 lbs., we have the child near birth representing about $\frac{1}{20}$ of the weight, and if we give opii gr. iv, at once or in divided doses near together, we have $\frac{1}{5}$ gr. of opium for the child's proportion of the gr. iv. If $\frac{1}{100}$ of a grain may produce convulsions in a young child after birth, may we not justly conclude that $\frac{1}{5}$ of a grain is very liable to produce the same result in the unborn child, especially when it is substantiated by such evidence as previously mentioned?

If the child receives through the mother a much larger quantity than we would think of giving it after birth, should we not carefully consider the possibility of producing convulsions and death in the unborn babe by administering anything like full doses of an opiate to the mother? The proportion of opium which is the child's share being so large, of course we must conclude that unborn children are daily getting poisonous doses of opium. In the prevention of abortion most authorities recommend opium as the sheet-anchor, but those of us who have used it for that purpose know too well how seldom it has given satisfaction in preventing premature delivery.

Let us consider for a moment, in each threatened abortion case, the possibility of producing the death of the fœtus, and certain abortion following the use of the very remedy we are using to prevent the same. We certainly have no reason to believe that the increased susceptibility of the child to the action of opium is just developed at birth; but, on the contrary, have good reason for believing that it is still more strongly marked in early pregnancy, when we know that the number of abortions occurring during the administration of opium for their prevention is very great. In my practice the number of abortions occurring during its administration is as great as with rest in the recumbent position with the hips elevated, etc., without the use of opium.

I conclude that opium will not prevent abortion; that it may be and probably often is an important factor in aiding or rendering more certain the completion of an already threatened abortion by causing convulsions in or death of the child.

When opium is administered to the mother for other painful affections, when there is no threatened premature delivery, is the death of the fœtus as frequent as the sized dose would lead us to suppose? Bartholow says that opium causes death through paralysis of the muscles of respiration, thereby depriving the patient of the amount of oxygen necessary to sustain life, and sometimes, he says, death is caused by paralysis of the heart. Anyone can at once see that death by paralysis of the heart is the only one of these methods applicable to the unborn child, and that for that reason alone death *in utero* does not occur more frequently than it does from administration of opium to the mother; for as long as the mother, who is least susceptible to its action, still continues to breathe, oxygen will be supplied to the child if its heart still continues to beat. The heart of the fœtus has not the resistance to overcome in the lungs, by want of oxygenation of the blood, which the child has after birth. This, then, will account for the small number of deaths from administering opium to pregnant women when labor is not threatened or in progress, and will also account for the relaxed condition and feeble hold upon life that children have when born while the mother is considerably under the influence of an opiate. For, the moment a child is born, whose blood is already charged with opium, so soon do the influences of paralysis of the muscles of respiration manifest themselves, rendering the respiratory efforts feeble or entirely absent, and greatly lessening the child's chances for an independent existence.

December 12, 1887.

CYSTIC KIDNEY AND OVARIAN CYST IN THE SAME INDIVIDUAL. OVARIOTOMY AND RECOVERY.

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Répéka, a virgin, 15 years of age, of Armenian parentage, was brought to me, July 8, 1887, from Adana, with the following history: From the first appearance of her menses till five months previous to her visit to me, the menstruation had been free and regular, and with but little discomfort. At that time she was confined to her bed with neuralgic pain in the right ovarian region. After several days of a scanty flow of menses the pain left, but returned with the menses, after forty days, at which time she noticed a swelling in the right inguinal region, which was only slightly less in size than at present. Since then her menses have been very irregular and scant, and the pain which is present, more or less, all the time is greatly increased at the menstrual period, radiating from the swelling over the whole abdomen. Three months ago she was aspirated by a physician and nearly two tumblerfuls of watery fluid drawn off. The fluid did not change its color, and gave no precipitate on boiling. The aspiration diminished the size of the tumor, but only for a few days.

On examination I found an uneven, slightly flattened, oblong tumor, as large as two fists, situated in the right inguinal region. It gave no sense of fluctuation and was very slightly movable. A small scar over it showed the point where the aspirator needle had been inserted. By vaginal examination the uterus was found of natural size, freely movable, and occupying a normal position. The left ovary was not enlarged, but the right one could not be distinctly made out from the vagina.

Though there were serious doubts about the case being an ovarian tumor, I decided to perform laparotomy and be prepared for ovariotomy if necessary. After several days of preparatory treatment, I operated under all antiseptic precautions, except the spray. On opening the abdominal cavity I found symptoms of a previous peritonitis, the omentum being adherent to the intestines in many places. The slightly movable tumor was covered by the intestines, and proved to be the right kidney, enlarged and displaced. It was probably cystic, but that could not be clearly made out, the intestines and mesentery being adherent to its anterior surface. It had undoubtedly been aspirated, which was probably the cause of the peritonitis. Below this was found a cystic ovary as large as an apple, to which the end of the Fallopian tube was bound down by inflammatory material. One cyst was a large as a hen's egg, and there were several smaller ones. The left ovary was normal in size and of healthy appearance. After applying a double ligature the ovary, with the end of the tube, was removed and the abdominal wound closed, being then dressed with iodoform and antiseptic cotton. The girl made an uninterrupted recovery, and in three weeks left the hospital to make a pilgrimage to Jerusalem. One month later she came to see me on her way to Adana and reported that she was entirely well, having had her menses without any pain.

This I believe is the first ovariotomy that has been performed in Palestine or Syria.

Ovarian tumors among Eastern women are very rare, this being the only one that has come under my notice during a five years' residence.

MEDICAL PROGRESS.

THE USE OF THE VAGINAL TAMPON IN THE TREATMENT OF CERTAIN EFFECTS FOLLOWING PELVIC INFLAMMATIONS.—In an article on this subject, read before the Alumni Association of the Woman's Hospital of New York, DR. T. A. EMMET says:

Under what conditions are we likely to obtain the best results from the use of the hot-water vaginal injections, and when might we expect a good result from the uniform pressure which will be exerted by properly tamponing the vagina? No other mode of treatment yet known can accomplish so much as is gained by the use of the hot-water vaginal injections in all acute pelvic inflammations. The hot water acts as a poultice in exciting contraction of the arterial capillaries. Its continued use can diminish the circulation in the parts with which it is brought in contact, as is done in the hands and arms of a washerwoman while in the exercise of her vocation. Nearly thirty years ago I recognized the fact that the reaction from a continued application of heat was contraction in the muscular coats of the arteries, and hence its application and value in lessening the supply of blood going to the seat of an acute inflammation. The use of the hot-water injection is invaluable in the treatment of all stages of inflammation involving the cellular or connective tissues of the pelvis, in lymphangitis, in phlebitis, and in the early stages of pelvic peritonitis. On the other hand, the vaginal tampon, in my experience, has only been beneficial after all acute symptoms have subsided. If this one feature is not recognized as a cardinal point, the indiscriminate use of this means of treatment will always be attended by unsatisfactory results, and with much unnecessary suffering to the patient.

The only class of cases in the treatment of which I have derived any special benefit from the use of the vaginal tampon has been where I have supposed the blood-vessels had degenerated into a varicose condition, and where this state of the veins has been brought about, as I have shown, from the effects of local peritonitis with adhesions, from the loss of the connective tissue, and from injury where the fascia has been involved.

Let us now consider the use of the tampon in the condition I have described as being the one fitted for its action. I have laid down the rule that its use can accomplish no good, but may do much harm, so long as any inflammatory symptoms can be detected. We must trust to the use of the thermometer to show the absence of an elevated temperature in the pelvis, and to the want of other symptoms indicative of existing inflammation. In the absence of other symptoms we must exclude to a great extent the presence of pain

on pressure as an evidence of active inflammation, its chief value then being but an indication of the manner in which the tampon should be applied.

Where adhesions have formed and the natural elasticity of the tissues has been impaired, the introduction of the speculum, or pressure made with the finger at certain points, must give rise to more or less pain. Traction is thus made through the connective tissue on the peritoneum and along some shortened line of adhesion. But we are to be all the more careful when pain does exist under these circumstances, through fear of setting up a fresh attack of peritonitis. The most important point that we have to consider is to ascertain, if possible, the *modus operandi* of the tampon, for only by the possession of this knowledge can we determine upon the fit subjects for its application. Experience certainly teaches that by the use of hot-water vaginal injections contraction of the arteries is excited, and that these injections are most useful in active inflammation. By the same means we have ascertained that the tampon does positive harm when not indicated, acting as a source of irritation so long as any acute inflammation exists; it does not lessen circulation through the arteries, as their coats are not sufficiently compressible.

We therefore can draw but one conclusion, and in doing so we reach the point that the tampon acts mechanically, by compressing the dilated veins and by lifting the uterus to its natural position in the pelvis, so that the circulation between the arteries and the veins may be equalized. If the floor of the pelvis has been injured in childbirth, one or both agents may have to be employed to prepare the woman for the needed surgical operation. And it is only by the proper execution of this operation that we can restore the fascia and connective tissue in the pelvis to a state of integrity, and thus indirectly give the necessary support to the vessels.

But we have a different condition to deal with in treating the effects of a local peritonitis. As soon as the adhesions have been separated by the steady pressure of the tampon the pelvic tissues begin to regain their tone. And as the prolapse is corrected by the use of the tampon, and the uterus is steadily maintained in its natural position, the smaller veins are able to regain their natural and tortuous course with the improved condition of the connective tissue. So far in the treatment of a case the use of the tampon is most satisfactory, but as we advance the progress becomes slower. We have at last reached the point where the permanency of our previous success in the treatment of the case must rest upon our being able to effect a radical change in the condition of the degenerated venous diverticula. But it is just in this condition where I believe we gain the chief advantage in the use of the vaginal tampon. We should not, however, be misled by expecting too much, and we must realize that we can only gain permanent good through use of the agent after a long and tedious application, which may extend over the course of months. Moreover, the patient must be, as a rule, favorably situated in a hospital for receiving the treatment, and the operator is only able to do full justice to the patient in proportion to his experience.

I am unable to understand how anything is accomplished unless these diverticula are destroyed through the long, steady, and uniform pressure which is maintained by the tampon when properly applied. It is impossible to suppose that these degenerated vessels ever could regain their tone. A certain amount of shrinkage doubtless takes place after they have been for a long time kept from being over-distended. But the continued pressure exerted by the tampon is but the application of a principle which has been long employed in general surgery. It is reasonable to suppose, therefore, that the contents of these vessels become gradually organized, more or less adhesive inflammation is excited by pressure, and eventually the tract throughout is obliterated.

As to the material for and the method of introducing the tampon: The best material is the cleanest quality of cotton wool as sold in the shops and put up in rolls. For the tampon I prepared a number of pieces of cotton of about the width and thickness of four fingers. I then made a ball of each by turning the four corners or edges together, and while grasping these I thoroughly smeared the outer surface with vaseline. Each ball was then of about the size of an English walnut, and kept its shape as it was packed loosely into a tin box for use. It was found advisable to have these balls of cotton as nearly uniform as possible and of about the size that I have indicated.

On beginning the operation it is sometimes necessary to place the patient on the knees and chest before the uterus can be replaced. Then several balls are to be introduced and placed at a point where the uterus can be held by means of the finger while the patient is turning upon her back. I have already stated my reasons for preferring this position in introducing the tampon. One ball of cotton after another should be placed in the vagina and passed closely along the index finger of the other hand, which is engaged in pressing back the perineum and in holding up the uterus or that portion of the tampon already introduced. If one part of the vagina is more sensitive than another we must learn to "humor" it by making less direct pressure until tolerance becomes established. When the sensitiveness is situated in the neighborhood of one of the broad ligaments we must pack the cotton on the opposite side of the cervix to act as a crutch. If the inflammation is chiefly about the utero-sacral ligaments, it is easy to tampon so that the uterus will be lifted without making direct pressure. The tampon should be placed so as to make as little direct pressure to the left as possible along the course of the rectum. After the introduction of a sufficient amount of cotton we are to pass the index finger carefully over every portion to be certain that it is uniformly placed and to smooth down the entire surface. When this "finishing off" is properly done it is possible, from the coherency of the cotton and vaseline, to pack but a portion of the vagina. It may be but the upper part, or to one side, and it is likely to remain in position.

There are two practical points in the application which, if not carried out carefully, will cause all our efforts to miscarry. The first is to keep the uterus, throughout the whole course of treatment, as nearly

as possible in its natural position and at the same plane in the pelvis. The other is to place the fresh tampon without delay after the other has been removed. I have been in the habit of renewing the tampon daily for the patients in my private hospital. But if it could be kept deodorized, the longer it remained undisturbed the more thoroughly would both of these indications be met in practice.

The best instrument for removing the cotton is a piece of whalebone with a rough screw cut in the end, a simple device for the application of which we are indebted to the late Dr. Sims. This is easily passed alongside of the finger and twisted into one portion after another. It is well to leave that part directly under the uterus until the last, so that the finger may be slipped beneath the cervix, at the proper moment, to hold it in place until the fresh tampon can be introduced. To facilitate this, everything should be prepared beforehand. It is very evident if the uterus is allowed to prolapse, that just in proportion as it does so the circulation must be disturbed, and that if there is any advantage to be gained from maintaining a steady and uniform pressure, it must be, as nearly as possible, a continuous one. Therefore there should be no unnecessary delay in returning the tampon, as the blood begins again to rapidly dilate the vessels as soon as the pressure is removed.

A serious drawback to the satisfactory progress to be gained by this mode of treatment is the recurrence of the menstrual period, when the use of the tampon has to be discontinued. Just before the period is expected I remove the tampon and immediately introduce one of the rubber rings which I have already referred to, and one of a sufficient size to admit of the introduction of the finger between it and the vaginal wall at any point. These rings are about ¾ of an inch in diameter, and so long as the patient remains in the recumbent position their broad surface offers a fair substitute for the tampon both in exerting a direct pressure upon the larger vessels and by taking up the slack in pelvic tissues. As soon as the flow has ceased I have a large hot-water vaginal injection administered, and then apply the tampon as before in the continued treatment of the case.—*N. Y. Medical Journal*, February 18, 1888.

MEAT IN PHTHISIS.—COHEN, in a paper on this subject, says:

The opinion most widely prevailing at the present time assigns the first rank as an aliment in phthisis to flesh, and more especially to beef. The results obtained by certain individuals, who devote themselves to the treatment of disease by an exclusive diet of beef prepared in a certain and most excellent manner, conjoined with lavatory potations of hot water to prepare the digestive canal for the reception and disposition of the aliment, cannot be ignored, whatever we may think of the theories and methods of the practitioners in question. Without confining themselves to beef, scientific physicians are justified in giving it the first rank. It should be taken at least twice daily, three times if possible. It may be eaten raw, as it comes from the butcher, or it may be chopped finely, seasoned to taste, and made into little cakes, which are eaten raw or slightly browned on the gridiron. It may be taken in the form of rare beefsteak broiled in its own fat, or as very rare roast beef. Other methods of cooking are to be prohibited. The meat is to be as juicy as possible, and fibrous portions are to be removed.

Very often one can be satisfied with the use of butcher's meat, raw or cooked as above. Sometimes, however, whether from partial failure of digestive powers or other conditions necessitating reduction in bulk without loss of nutritive material, or suggesting conservation of the energy that would be expended in digestion, it becomes necessary to resort to special methods of preparation. The meat powders prepared by various pharmacists, more especially for forced feeding, here render valuable aid. By cutting boiled beef into fine pieces, drying by means of a water bath, and grinding in a coffee mill with the teeth set closely, an excellent meat powder may be made in the kitchen. (Dujardin-Beaumetz.)

The preparation from which Cohen has seen the greatest benefit, and which he is in the habit of most frequently prescribing, is beef peptonoids. Whether from improvement in the process of manufacturing, rendering it more palatable, or from decrease in the fastidiousness of patients, there has not recently been the same difficulty in getting patients to persevere in the use of it that was experienced in former years.

The methods of administration may be varied almost indefinitely. It may be added to soups and broths, to milk punch, egg-nogg, etc., taken in warm or cold water, or made into a paste with milk or water and spread upon bread. Beginning with a teaspoonful three or four times a day, the amount is to be increased, as soon as the preferable method of administration is determined upon, to a tablespoonful or more. It is preferably given among the supplementary articles of diet, between meals.—*Dietetic Gazette*, January, 1888.

POISONING FROM BORIC ACID, IN SURGICAL PRACTICE.—DR. SPENCER, of St. Paul, reports the following case: A short time since a woman was admitted to the City Hospital with syphilitic necrosis, and caries of the bones forming the ankle-joint. October 2, he removed by scooping, scraping, etc., parts of the lower ends of the tibia and fibula, and nearly all of the astragalus. The sinuses in the soft parts about the joints were scraped as clean as possible, the cavity was washed out with a weak bichloride solution, and packed with large clystals of boric acid, probably something over half an ounce being used. Although the wound was very foul-smelling at the time of operation, it was left undressed for a week and was then found nearly free from odor. Most of the acid was still undissolved in the cavity, but a small portion having been absorbed. It was washed out and dressed in the same way as before, and left for another week. During this time, fourteen days, her health, appetite, and general condition were good. She then began to lose her appetite, and in a short time had nausea and vomiting, which

grew progressively worse, so that, finally, nothing could be retained by the stomach. Lime water, counter-irritation, and cold to the epigastrium, morphia, ipecac, and all the various anti emetics were used in vain. Her other symptoms were restlessness, insomnia, the little sleep she did get being very disturbed, almost constant hiccough, great weakness and emaciation, and a very marked cardiac weakness. Although her pulse was very weak, there was none of the compensating rapidity which generally occurs in heart failure. She had a rather severe coryza, the conjunctivæ were very red and inflamed, there was marked inflammation of the fauces and pharynx, some bronchitis, and an acrid discharge from the anterior nares. Her tongue was red, glazed, and cracked. There was a very well-marked papular erythema, the papules nearly coalescing over the face, neck, arms, and upper part of chest. These symptoms came on gradually and grew worse for three days, at which time she was very weak, though she had taken considerable nourishment by rectum. The dressing was then changed, and the symptoms here noted began to disappear, although it was ten days before she was as well as before they began.—*Northwestern Lancet*, January 15, 1888.

TREATMENT OF SYPHILIS.—In the issue of the *Bulletin Gén. de Thérapeutique*, of October 30, is a useful paper on the treatment of syphilis, by PROF. VERNEUIL. As a representative of the more conservative of French surgeons, Verneuil speaks with authority on such topics. The conclusions at which he arrives harmonize with the opinions most generally held. He maintains the superiority of mercury. As respects the diagnostic value of the two agents—iodides and mercury—he never decides the question of specific lesion or not, except from the results of a trial of mercury. In three examples of old syphiloma of the testicle—cited for illustration—the iodide of potassium in massive doses failed to disperse the tumor, but mercurial treatment effected a cure in a few weeks, thus demonstrating the nature of the neoplasm.

Professor Verneuil does not advocate the huge doses of iodide of potassium now in vogue—2 to 3 grams (30 to 45 grains) per day being his maximum—except in cases of rapidly destructive ulcerations of the nares, veil of the palate, and similar lesions, and even then in quantity not exceeding 75 or 96 grains *per diem*. He has never favored the conjoint administration of mercury and iodides. He prefers to give mercury by itself, and associated with remedies to improve the general state of the patient. He has occasionally made use of the combination of these remedies in slowly developing secondary or tertiary accidents when mercury does not act well, or has not been given at all. Under such circumstances he prescribes in the simplest way ¾ grain of protoiodide of mercury and 15.5 grains of potassium iodide.

Mercurial frictions, although in some cases acting energetically, do not commend themselves to his judgment. When he has employed inunction, he has not dispensed with the internal administration of the protoiodide or some other mercurial, in small doses. Nor has he practised the method of subcutaneous injection of mercurials, which often cures, apparently, in twenty to thirty days. He holds that the most certain curative results are obtained by the slow saturation of the organism as effected by the stomachal administration rather than by sudden impression.

For the local treatment of syphilitic ulcerations, mucous patches, etc., the early manifestations of the constitutional state, he employs nitrate of silver, or chloral solutions, topically, in conjunction with the use of mercury internally.—*American Journal of the Medical Sciences*, January, 1888.

TOBACCO AMBLYOPIA.—MR. EDGAR A. BROWNE, in an article on this subject, draws the following conclusions:

1. The optic nerve resembles a sensory tract of the spinal cord, consists of two tracts, of which the central has a special affinity for tobacco, while other drugs, *e.g.*, quinine will leave it unaffected.

2. Tobacco is the essential agent in causing an axial neuritis, which does not in ordinary cases tend to spread to the nerve-fibres coming from the peripheral retina.

3. As a rule patients apply in the early stage of neuritis, and complete recovery may be expected without any treatment except entire cessation of smoking.

4. When recovery is established, moderate smoking is not injurious.

5. Although it would be absurd to suppose tobacco is the only agent capable of causing axial neuritis, no other has yet been substantiated in a series of cases arising in strictly non-smokers.

6. Besides tobacco a special condition is required to precipitate an attack; alcohol, diabetes, excessive venery, starvation, mental shock, or distress, are the most common auxiliaries.

7. In some persons a special tendency to degeneration (sclerosis or atrophy) exists hereditarily; to these tobacco is especially injurious.—*Liverpool Medico-Chirurg. Journal*, January, 1888.

TYPHOID BACILLI AND BOILING WATER.—In order to test the destructive power of boiling water on typhoid bacilli, DR. VILCHUR, of St. Petersburg, made a number of pure cultures in broth, keeping them in a thermostat for two days at a temperature of about 92° F., and then mixed them with known proportions of boiling water, immediately afterward sowing the mixtures in jelly. The results showed that, when the volume of boiling water equalled that of the culture, the bacilli were partially but not wholly destroyed. When double the volume of boiling water was used, the bacilli were all killed. From experiments with typhoid stools, he found that all the bacilli, however numerous, were invariably destroyed by the addition of a volume of boiling water equal to four times that of the stool. In this way he suggests it will be easy to disinfect with certainty all the dejections of typhoid patients.—*Lancet*, January 14, 1888.

THE
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PUBLISHED WEEKLY.

THE EDITOR OF THIS JOURNAL would be glad to receive any items of general interest in regard to local events, or matters that it is desirable to call to the attention of the profession. Letters written for publication or containing items of information should be accompanied by the writer's full name and address, although not necessarily to be published. All communications in regard to editorial work should be addressed to the Editor.

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MEDICAL LEGISLATION AGAIN.

In this Journal for January 28, 1888, we called the attention of our readers to the necessity, or at least the desirability, of more uniformity in the laws enacted for the regulation of medical education and practice in the several States, by citing some of the diversities at present existing and the inconveniences to which they must subject practitioners in moving from one State to another. In alluding to the medical registration law of Pennsylvania, we carelessly and erroneously mentioned a State Board for the execution of the law, when the law provides no State Board, but requires the registration of practitioners to be made by the prothonotaries of the several counties. An editorial in the *Philadelphia Medical Times*, of February 15, 1888, properly reminded us of this error, and then proceeds to pervert the whole tenor of our article. It calls our simple illustration of the working of that feature of the Pennsylvania law which requires all graduates from colleges outside of that State to have their qualification endorsed by the faculty of some medical college in that State, before they could be registered as legal practitioners, as *uncomplimentary*, and yet admits its entire correctness.

It proceeds further to commend the law on the plea that the possession of a diploma from a legally established medical college, either in this or foreign countries, could not be safely regarded as proof that the person actually had all the qualifications necessary for a safe practitioner of medicine, unless he obtained a special endorsement by the faculty of some medical college in Pennsylvania. The correctness of this plea few will be inclined to deny; but, unfortunately, the inhabitants of the world outside of Pennsylvania will be so incredulous or uncharitable as to suspect that even the faculties of the medical colleges in Pennsylvania may award the diploma to some of their own students who are not possessed of all the qualifications desired. And if they should, how does the Pennsylvania law protect her own citizens from such? As we observed in our previous mention of this subject, the legislators of New York State have already returned the compliment by enacting a law that makes it necessary for graduates from medical colleges outside of that State (not excepting those in Pennsylvania) to apply to a medical college Faculty in New York for special endorsement before they can become legal practitioners in that State. Now let Massachusetts enact a similar statute, and if any graduate in Pennsylvania, or New York, or elsewhere, wishes to practice in the old Bay State, let him get the proper endorsement in Boston. Then the States in the Mississippi Valley will not be slow in adopting the fashion, and the usually large number of graduates from the colleges of New England, New York and Pennsylvania who wish to settle in the West and South must submit their credentials and qualifications to the examination and approval of a medical college faculty in whatever State they propose to practice.

The specially ludicrous feature in this kind of legislation is the effort to protect the people of each State from the presumably unqualified graduates from the schools of other States, while they make no provision for protection from possible unqualified graduates from schools within their own boundaries; the practical result of which, would be to keep all the poorer medical students who *barely* succeed in graduating at the lower margin of the scale within the State where they graduate, through fear of failure to pass review by another college faculty elsewhere; while those most highly qualified, being well assured of their ability to pass review anywhere, would freely migrate from their own to other States or Territories wherever choice locations were to be found. But little less amusing is the assertion of the *Medical Times* that we evidently believe other examinations or safeguards than medical college graduation are not necessary to secure for the people a properly educated medical profession, when we have for fifty years, on every suitable occasion, advocated the establishment of a properly constituted Board of Examiners in each State, independent of all colleges or institutions for medical instruction, by whom all per-

sons proposing to study medicine should be examined concerning their general education, and admit to registration as medical students only such as furnish full proof of good English education, including mathematics, physics, the natural sciences, and in addition the elements of the Latin language; and by whom all persons proposing to enter upon the practice of medicine in any of its departments within the State should be fully examined in all the branches of medicine, both scientific and practical, and grant licenses or admit to registration only those who are found qualified, without any regard to college diplomas. And we have repeatedly advocated the same in the columns of THE JOURNAL, as our editorial confrère might have learned by looking over its editorial columns even during the preceding two months.

The medical legislation of North Carolina, Alabama, Virginia, and Minnesota, is already placed fairly on the proper basis, only needing some additional details, and we are hoping that the Committee appointed by the Section of State Medicine of the American Medical Association at the last annual meeting, will report such form of law as will receive the sanction of the medical profession generally, and will become the basis of the medical legislation in all the States, thereby securing substantial uniformity of laws regulating medical education and practice, instead of the present inefficient and too frequently contradictory enactments of the several States.

THE RELATIONS OF THE MEDICAL PROFESSION TO THE PUBLIC.

There seems to be a growing tendency on the part of the newspapers to gratify a morbid public curiosity and craving for harrowing and sickening details, however much individuals may suffer thereby, or however innocent the individual may be of having committed wrong or omitted right doing. And with this tendency there is another, almost as vicious, of the newspaper's presuming on the ignorance of intelligent readers, and neglecting to take measures to cure its own ignorance. In short, newspaper policy seems to be tending more and more to a reversal of the Golden Rule—which is just as good to-day as it was two thousand years ago—and one may sum it up as "Do unto others as you would not be done by."

But what has this to do with the relations of the medical profession to the public? So much: That physicians should see to it that when the public press seeks to encroach upon the rights of their patients—and patients have rights—they should not aid or encourage such infringement of the patient's rights by violating confidences. As the press has no right to pry into the personal maladies of a person and furnish them to the public, the physician, as a matter of justice to the patient, has no right to aid the press in any way in making unjustifiable disclosures.

And there is an ethical aspect of the question. In concluding his annual address before the Philadelphia County Medical Society, January, 1888, the PRESIDENT, DR. J. SOLIS-COHEN commented as follows on the relations of the profession to the public:

"It is to be deplored, on the score of professional ethics, that mention of some of our scientific work is occasionally noted unofficially in the public newspapers, despite the express interdiction in our By-laws. Whether this prohibitory clause be deemed judicious or not, it is plainly the duty of all members to accede to its behests. Those who disapprove of it should present their reasons for doing so in full meeting and should endeavor to have it rescinded. They have neither the right to ignore it on the one hand, nor the right to disobey it on the other. On several occasions when reporters of the daily press have been present at our meetings they have assured me that they were present on invitation of a member; that they had no desire to intrude, and had believed that their presence would be agreeable to the Society. This subject leads me to offer a few remarks upon certain relations of the profession to the public. While there is no reason to doubt that much of the individual editorial advertisement of subjects discussed or to be discussed at societies, or of operations performed or to be performed in public places or in private, is due to officiousness on the part of a student, a follower, an attendant or a patient, there is equally good reason to believe that most of it is courted, directly or indirectly, by the individual most interested. Of this fact I have been amply assured by newspaper men who have been my own patients, and to whom I have put the question direct. I have been assured, further, that it could be taken for granted that little matter of personal medical importance ever gains access to the papers without the knowledge of those most intimately concerned. On the other hand, it is equally true that matters of some immediate momentary interest to the public do not always reach the newspapers, even when passing through the mails in hundreds of notices openly printed upon postal cards.

"While it is gratifying to believe that this itch after newspaper notice may be much less prevalent in Philadelphia than in some other localities, the hope is to be indulged that it may eventually become en-

tirely extinguished. The disease at present is in great measure a mere matter of taste—quite poor taste, according to the ethics of the Philadelphia County Medical Society.

"One custom in which the ordinary conduct of the physicians of Philadelphia is to be commended, in their relations to the public, consists in their unwillingness to cater to gratifications of the morbid appetite of the newspaper public for tattle as to the nature of the diseases with which some of their distinguished patients may be afflicted, and as to the prospects of their death or survival. Propriety indicates that such inquiries should be referred to the patient if he be in a responsible condition; or, if otherwise, to that member of the family upon whom the responsibility has devolved. The confidential relations of a patient to his physician should remain undisturbed even when the patient is no longer competent to withdraw his confidence, and no communications presumptively disagreeable to him in his senses, should be furnished for press gossip without the consent of those who are most immediately interested. The pleasure derived by an invalid from the daily perusal of his favorite newspaper is often exceedingly great; far greater than when, under the press of affairs, he read chiefly headings and telegraphic items. He reads it much more thoroughly, sometimes even to the advertisements. As he reads day by day, of what is going on in the great world outside, his little world of bed-room life seems somewhat less constricted. Let us avoid curtailing his gratification by acts of ours. If his newspaper cannot be taken up without a dread of seeing some paragraph discussing the nature of his malady and the prospects of his early demise, this innocent source of enjoyment is poisoned for him. He must rest content with a mutilated paper, the very gaps in which are repulsively suggestive, or he must consent to have it read to him, or give it up altogether and thus become deprived of taking interest in many things outside of his own illness. It is hard enough for him to fear or to know that his malady is incurable, without having the fact forced upon his attention at some comparatively happy moment when it is out of his thoughts. Harder still, perhaps, to steel himself into indifference.

"It is unnecessary to mention examples. They must be familiar enough. In some instances there has been abundant reason to believe that death has been hastened by thoughtless comments in newspapers. Shall the individual always be sacrificed to the multitude? It has been stated that occasionally, when potentates or very wealthy individuals have been the subjects of these items, special copies of newspapers have been printed for their use, in which the objectionable personal passages of the general edition have been replaced with other matter. But there is little hope that the sores of the afflicted shall not be exposed to public gaze, unless their own physicians protect them by the charity of their reticence. The public maw is so rapacious, that the average newspaper man dares not deprive it of any tidbit, however unfit the food, and, worse than the cannibal who sometimes kills the sick man that his people may devour him, the editor sometimes delivers the sick man to his readers that they may devour him even while he is dying."

HUMAN AND ANIMAL TUBERCULOSIS.

The announcement and programme of a Congress of Physicians and Veterinarians to be held in Paris on July 25–31, for the study of human and animal tuberculosis, have been received. The Committee on organization has selected the following questions for discussion:

1. The dangers of the use of meat and milk of tuberculous animals. Methods of preventing them.

2. The human races, animal species, organic media considered from the point of view of their aptitude to tuberculosis.

3. The ways of introduction and propagation of the tuberculous virus in the economy. Prophylactic measures.

4. The early diagnosis of tuberculosis in man and animals.

In addition to these subjects the Committee desires to direct special attention to the following subjects:

Heredity of tuberculosis in man and the different species of animals. 2. The contagiosity between man and man, between animals, from animals to man, and vice versa. 3. The different modes of evolution of experimental tuberculosis according to the quality and quantity of the virus inoculated. 4. Difference in tuberculous affections in different species of animals. 5. Methods of distinguishing the lesions caused by the bacillus of Koch, granulations, and inflammations due to different microbes (zooglœa, bacteria of contagious pneumonia of swine, aspergilli, etc.), to animal parasites, or to foreign bodies. 6. Tuberculous lesions complicated by other microbial lesions. 7. Mode of formation of giant cells and isolated tuberculous deposits. 8. Evolution of local tuberculoses. 9. Agents destructive of the bacilli of Koch. 10. Local and general

means capable of arresting the extension of experimental tuberculosis. 11. The value of surgical therapeutics in tuberculous affections.

In addition to these subjects voluntary papers will be received provided they are confined to the subject of tuberculosis. Foreign physicians and veterinarians may become members of the Congress by writing to the Treasurer, M. G. Masson, 120, Boulevard Saint-Germain, enclosing $2.00. The Secretary-General is Dr. Petit, 11, Rue Monge, Paris.

INJECTIONS OF ALBUMEN AND ALBUMINURIA.

DR. PAUL SNYERS has recently completed a series of experiments undertaken for the purpose of controlling the experiments of Semmola on the pathogenesis of Bright's disease. He injected into dogs white of egg diluted with a small quantity of distilled water. The operations were done by means of a syringe of double the capacity of the ordinary Pravaz syringe. The syringe was carefully disinfected before each experiment, and the quantity of albumen injected varied from 4 to 5 grams per kilogram of the animal's weight. When this quantity is compared with the amount of albumen excreted daily by the kidneys in the gravest forms of nephritis, it is seen that the quantity injected into the dogs was incomparably greater than that excreted. After the animals were killed the kidneys were examined in the fresh state by congelation, and after the action of osmic acid, absolute alcohol, Müller's fluid, or boiling water. Continuous injections during three, six, nine, and twenty-three days never produced glomerulitis. At certain points albuminous coagula were found, and a little diapedesis on the interior of the capsule. In no case was there any fatty degeneration of the epithelium. These facts led Snyers to draw the following conclusions:

1. The albuminous (albuminuric) dyscrasia determined by the injection of egg-albumen is transitory, and ceases within twenty-four hours after the injections. The albumen found in the urine is only the white of egg that has been injected. It is a useless substance, passes through the organism, and is eliminated naturally by the kidneys without producing any lesion.

2. Histological examination of the kidneys shows no sign of any lesion of these organs, even after the injections have been carried on for thirty days.

3. The fact that injections of white of egg cause an albuminuria that is absolutely transient, and without action on the renal parenchyma, permits the conclusion: injections of white of egg are incapable of producing either the lesions of nephritis, or a pathological albuminuria.

These experiments, recorded in the *Bulletin de l' Académie royale de Médecine de Belgique*, absolutely contradict the experiments and conclusions of Semmola, with regard to the causation of a clinical picture of Bright's disease by subcutaneous injections of white of egg.

STHOPHANTHUS IN METRORRHAGIA.—DR. V. POULET, of Plancher-les-Mines, calls attention in the *Gazette de Gynécologie*, of February 13, 1888, to the use of strophanthus in metrorrhagia of the menopause and that of very fleshy women during the age of fecundity. As is well-known, ergot is very useful in the first class of cases, but has little or no effect in the second. But Poulet has used strophanthus in both classes of cases for almost three years. But he has used the drug *in substance*, 5 centig. of the recently powdered seed with a sufficient quantity of honey to make one pill. Two pills are taken the first day, three the second, and four a day after that, if necessary. Poulet claims, also, that he has had exceptionally good results from the use of strophanthus in typhoid fever, and will soon publish his cases.

"THE MEDICAL JUDISPRUDENCE OF INEBRIETY," a volume of 200 pages, is announced as soon to appear from the press of the *Medico-Legal Journal*, No. 57 Broadway, New York, N. Y. It is to contain the large number of papers presented and discussed by members of the New York Medico-Legal Society, and others, touching the relations of jurisprudence and inebriety. The price of the volume in cloth is to be 60 cts., and in paper, 30 cts., orders for which may be addressed to the *Medico-Legal Journal*, New York.

TRANSACTIONS OF THE NINTH INTERNATIONAL MEDICAL CONGRESS.—We have reliable information that the publication of the Transactions of the recent Medical Congress at Washington, is progressing satisfactorily; with the strong probability that at least three volumes will be ready for delivery early in May next. The members of the Committee of Publication are pushing the work as vigorously as possible.

THE ADDRESS OF S. T. ARMSTRONG, M.D., U. S. Marine Hospital Service, Secretary of the Section of State Medicine, of the American Medical Association, is "U. S. Marine Hospital Service, New York, N. Y."

SOCIETY PROCEEDINGS.

GYNÆCOLOGICAL SOCIETY OF BOSTON.

Stated Meeting, November 10, 1887.

WM. G. WHEELER, M.D., IN THE CHAIR.

A communication from the PRESIDENT, DR. H. M. FIELD, was read, in which he resigned his office because his own health and that of members of his family demanded that he should spend the coming winter in a milder climate. On motion of Dr. L. F. Warner it was voted that the resignation of the President, Dr. H. M. Field, be accepted, and that the thanks of the Society be given him for his efficient and valuable services in its behalf.

PATHOLOGICAL SPECIMENS.

DR. E. C. KELLER exhibited to the Society the two following specimens which had been removed by her from patients at the New England Hospital:

Case 1. Removal of Ovaries and Tubes for Pyosalpinx.— Patient, æt. 44, had suffered excessive pain since last June and temperature had been high; excessive abdominal tenderness. On operation pus was found in the tubes and ovaries. Pus had also escaped into the abdominal cavity. A fibroid was found on side of uterus opposite to pyosalpinx. Recovery.

Case 2. Multilocular Fibroid.—Patient, æt. 45, had flooded for two years; recently it had recurred every ten days and had been excessive; patient was blanched and life had become a burden. There was no pain. A multilocular fibroid was removed and patient made a good recovery.

DR. A. L. NORRIS presented a specimen of

CANCER OF THE STOMACH,

which was especially interesting from its history. Patient, æt. 76, forty years ago thought that she swallowed a water limpet while drinking water. She has always maintained that the animal remained in her stomach, and she has suffered much of many doctors in her efforts to get rid of it. Dr. Norris saw her but recently and made the diagnosis of cancer of the stomach. On autopsy such was proved to be the case.

DR. H. O. MARCY then read a report of

A YEAR'S EXPERIENCE IN PRIVATE HOSPITAL PRACTICE.

Whole number of operations, 81; deaths, 1. Restoration of the perineum, 11; anterior colporrhaphy, 3; urethral carunculæ, 2; curetting endometrium for various causes, 25; operations for the repair of the cervix uteri, 9; cancer of the uterus, 4; removal of cancer of the breast, 5; laparotomies, 7; Alexander's operation, 1; hernia—radical operation, 2; hæmorrhoids, 3; miscellaneous, 9.

In the entire list of the year's work there has not been in his private hospital a single case of septicæmia. The walls and floor of his surgery are washed with 1:1,000 mercuric bichloride solution before each important operation, and the room closed for an hour subject to the spray of carbolic acid. The spray is not used, as a rule, during operation. Surgeon and assistants must be specially clothed, and cleansed by scrubbing with mercuric bichloride and soap even to hair and beard. Dr. Marcy's method of restoration of the floor of the pelvis in cases of ruptured perineum is somewhat peculiar. The portion of the levator ani anterior to the rectum is the part of the muscular structure which has been ruptured, and it is the restoration of the separated, retracted portions which he holds as important to secure. This is best effected by freeing the posterior half of the vaginal muscle from its attachment. It is easily done by making the parts tense with two fingers in the rectum, splitting the tissues, in considerable degree cicatricial, until the loose connective tissue septum between vagina and rectum is reached. The separation is carried to the *upper border* of the *prolapsed* vaginal wall and is held forward by an assistant, while the floor of the pelvis is restored by tendon continuous suture. This is best effected by the use of a rather large, fully curved needle, the Hagadorn pattern preferred, burying the suture deeply in order to bring together the retracted muscles. The detached vaginal portion is carefully adjusted to restore the vaginal opening, and the edges coapted by a fine tendon continuous suture. In cases of extensive injury, the double pin is used so as to hold firmly at rest the tissues during repair. Where there is complete rupture the same operation is advised, after the dissection closing with great care the rectal and then the vaginal side of the triangle.

The fatal case was from rupture of a papillomatous cyst of the left broad ligament

DR. S. N. NELSON exhibited two specimens from two of the cases referred to by Dr. Marcy.

Case 1. Cancerous Uterus removed by Hysterectomy.—This uterus had been repeatedly curetted for the relief of the flooding, until nothing but a shell of the original uterus was left. Hysterectomy was decided upon and was done by Dr. A Martin, of Berlin, during his recent visit to this city. Sepsis supervened, but a satisfactory recovery ensued, and the patient was discharged at sixth week.

Case 2. Ovarian Tumor consisting of a Single Cyst.—The principal interest attached to this case was the ectasic type of the vessels of the broad ligament supplying the tumor. To guard against hæmorrhage from these vessels Dr. Marcy used a double line of sutures with the shoemaker's stitch.

DR. E. W. CUSHING said that the cases usually called adenoma of the uterus had interested him the most. In the case reported upon which hysterectomy was done for cancer he had curetted the uterus thoroughly in 1885 for a growth that was then called by competent men a simple adenoma. He had at that time prophesied that it would evenually prove to be cancer, and such was the case. These cases are constantly appearing which, according to present authorities, are simply glandular, but which are really practically malignant. The question naturally arises, where do the simple glandular changes end and cancer begin? Schrœder's teachings do not represent the facts in regard to these growths. Future study upon this point will lead to an earlier recognition of

the malignant tendency of these growths and the necessity of radical measures. When an adenoma appears after the climacteric and shows a tendency to bleed freely it is cancer, and hysterectomy should be done.

In cases of repair of the perineum Dr. Cushing had been led by experience to depend less upon the pins than upon deep sutures. These sutures should be of catgut, and if they are thoroughly antiseptic they will become organized and cause no trouble.

The question as to what should be done with the flap of vaginal mucous membrane has never been definitely settled. If it is simply left it is likely to become œdematous and tender. Dr. Cushing's practice has been to sew this flap to the floor of the vagina. If the suturing is carefully done with fine sutures, no trouble will follow. This method will supersede all others, because in this way all the mucous membrane is saved. This consideration is an important one when we consider that the patient may become pregnant and need all possible material to secure proper dilatation of the vagina.

DR. A. P. CLARKE said that he had seen Dr. Cushing operate for repair of the perineum, and considered it wonderful to save so much tissue.

DR. E. C. KELLER asked Dr. Marcy in regard to his experience in dilating and curetting the uterus for relief of dysmenorrhœa.

DR. MARCY, in closing the discussion, said that he regarded the treatment of endometritis by dilatation and curetting as a gain. If the uterus and cervix are surgically clean the cervix can be forcibly dilated with safety The parts are first thoroughly cleansed by the use of a 1:2,000 hot bichloride solution, and then the cervix is rapidly dilated to a No. 25 F. scale. This will admit the curette. Curetting changes the vascularization of the uterus; in this way it changes the nutrition of the tissues and relieves dysmenorrhœa. In regard to operations for repair of the perineum Dr. Marcy said that this operation was simple, both in its principles and technique, but that as yet there was no settled conviction among the profession as to the best method. The leaders of the profession in New York pay no attention to reuniting the muscular fibres of the transversalis perinei, and thus overlook an essential feature of the operation. When a tear of the perineum of any magnitude occurs the fibres of this muscle are severed and are retracted to a greater or less extent. As long as these muscular bands are left ununited they tend to draw back the posterior vaginal wall and to increase the difficulty. In the operation the mucous membrane of the posterior vaginal wall should be thoroughly dissected up and the ends of the transversalis perinei sought for and united by catgut sutures. Only by doing this can the best results be reached. This point in regard to uniting the muscle was overlooked by even Dr. Jenks, who originated the method of dissecting up the posterior vaginal mucous membrane. He did this only as a protection for the damaged parts below. Dr. Marcy denied that the transversalis perinei is ever histologically absent, as is claimed by some who deny the necessity of reuniting the fibres of that muscle.

OBSTETRICAL SOCIETY OF PHILADELPHIA.

Stated Meeting, Thursday, December 8, 1887.

THE PRESIDENT, T. M. DRYSDALE, M.D., IN THE CHAIR.

(Concluded from page 212.)

DR. HAMILL exhibited a

UTERUS REMOVED FROM A WOMAN IN THE LAST MONTH OF PREGNANCY.

As the opportunity is not often afforded to examine the uterus at an advanced period of pregnancy and as this particular specimen presents several well marked and interesting features I felt that it would be of interest to place it before the Society. The uterus was removed twenty-four hours after death; inasmuch as I was present at that hour I wished to do so immediately but could not secure the consent of the family. I shall very briefly call attention to the several conditions noticed. The outer surface of the uterus is studded with syphilitic nodes. The woman had contracted syphilis early in her married life and manifested other marked symptoms of the disease. There is also a small cyst of the broad ligament. The specimen presents quite markedly the contraction ring or ring of Bandl. I give both designations advisedly inasmuch as it is not definitely determined whether this ring represents the internal os as Bandl claims, or whether it marks the boundary between the upper and lower uterine segment as Schrœder believed. According to the investigation of McDonald, Müller, Sänger and Lusk this condition does not always exist. In three autopsies made by Lusk he failed to find any trace of Bandl's ring. Schrœder in a frozen specimen found this ring very distinctly but claimed that it was the dividing line between the upper and lower uterine segment. Bandl holds the contraction ring of Schrœder to be the true internal os and consequently one would expect to find below this ring cervical mucous membrane, whereas, the portion between Bandl's and Müller's ring is covered by deciduæ. Bandl explains this by his three hypotheses, 1. The deciduous membrane is crowded down into the cervix by the weight of the presenting part. 2. In primaparas the advancing head strips off the mucous membrane which is replaced by deciduæ. 3. That the cervical mucous membrane is transformed into decidual membrane during pregnancy.

Another interesting feature that the specimen demonstrates beautifully, is that condition pointed out by Leopold and Lusk, as seen in their Cæsarean sections, viz.: the delicate filamentous bands running from the chorion to the deciduæ, which are the atrophied villi of the chorion. The attachment of the placenta is to the posterior wall of the uterus.

DR. HIRST had seen the frozen section made by Schrœder, in 1884, and it was most interesting showing distinctly the so-called ring of Bandl. He did not believe in any one of Bandl's three hypotheses to account for decidual membrane in a place where according to Bandl's theory, cervical mucous membrane should be found. The extraordinary diversity in the explanation advanced by Bandl shows plainly enough

the insufficient ground upon which his theory rests.

Dr. M. Price firmly believed in hunting for anatomical facts upon the living subject. He had looked for Bandl's ring and had never been able to find that it existed. He is fond of turning in badly presenting children and has had his hand in the uterus many times. He has had it so compressed that it was useless for some moments; the compression was always uniform and from all directions. He has yet to find any constriction in the region of the so-called Bandl's ring alone. He has in several cases observed hour-glass contractions, but this was due to continued pressure on one side of the uterus, and consequent loss of contractility of that portion. He does not believe that hour-glass contraction ever occurs in uncomplicated labor.

Dr. Parish remarked that in a Cæsarean section performed by Dr. Foster, of Maine, the operator had observed a circular contraction. This went to prove that such a thing could occur. In two cases of Cæsarean section performed by himself no such contraction had existed, and likewise there was no such circular contraction in a third case operated on by Dr. Allis and himself.

Dr. Githens stated that in discussions before the Society in October, 1879, in December, 1879, and in October, 1880, upon the subject of "Hour-glass Contractions of the Uterus," Dr. Albert H. Smith, Dr. R. G. Curtin and Dr. W. H. Parish had reported instances of prolonged and forcible contractions of a ring of muscular fibre in the uterus above the internal os, the lower and upper segments of the uterus remaining flaccid. In Dr. Curtin's case Cæsarian section was being performed, the uterus had not been emptied of the contents and the ring of contraction was seen as well as felt. In the other case a placenta or twin fœtus was retained in the upper segment of the uterus. May not this ring of muscular fibre so contracting be identical with that described by Bandl? In the case reported by A. H. Smith, the condition lasted for two hours and was relieved by hot-water intra-uterine injection. The doctor reported the point of contraction as being at the internal os but as he was opposed to the idea of there being any such thing as a contracting ring higher up we may make some allowance and consider that it occupied a position near that described by Bandl as the location of the contraction band.

Dr. R. Stewart had seen a case in which after the child was removed the patient began to show signs of internal hæmorrhage. The uterus was examined and found to be much distended. An attempt was made to pass the hand in but it was done only with difficulty as there was a powerful contraction in the lower segment. The body was found distended and very flaccid, and filled with blood. He thought that this case proved that a contraction could occur in the lower segment.

Dr. Hirst quite agreed with Dr. Price in thinking that these cases always arose from pressure. He had seen good examples of Schroeder's contraction ring in which the ring marked the dividing line between the upper and lower segments of the uterus, and was not at all due, as might be inferred from some of the preceding remarks, to contraction of the circular muscular fibres, but was merely the sharply defined boundary between the upper, thicker and more muscular portion of the uterus and the lower, thinner, more fibrous portion above the true internal os.

Dr. Hamill observed that the patient had formerly suffered from Graves' disease but had no active symptoms at the time of death. She had died of heart failure.

Dr. Hamill presented, also,

A FOUR WEEKS' OVUM ENTIRE WITH THE DECIDUÆ.

He presented this specimen for a two-fold reason. 1. On account of its comparative rarity. 2. To elicit from the members of the Society their views on the after treatment of abortion. The expulsion of the deciduæ vera is not as a rule thrown off with the ovum entirely. Dürhssen says, "from a personal experience with more than 150 cases of abortion in the service of the Charity of Berlin that the retention of portions of the deciduæ vera is not the exception but the rule," and Tarnier says "that ordinarily the uterine deciduæ remains adherent to the uterus." Whether it is safer to leave this in the uterus and allow Nature to throw it off or to remove it at once is the particular point I should like to hear the members discuss. For my own part I feel sure that it should be immediately removed. As to the manner I shall say nothing.

Dr. Hirst said that when the deciduæ vera is retained as is the rule in early abortions, one of two things happened; the mass either putrified and thus became a source of septic infection, or it became greatly thickened and remained as a foreign body, exciting frequent hæmorrhage or constant leucorrhœa. He always cleaned away any debris left in the uterus after abortion.

Dr. Goodell agreed fully with Dr. Hirst as to the propriety of removing the retained fragments of the placenta or the membranes, but he had a word to say about the manner of their removal. He deemed the much-vaunted curette, whether sharp or blunt, a very inferior instrument, especially so whenever the fragments had been retained for several weeks. Not only did the curette bruise and injure the unimplicated portion of the womb, but it tended to glide over the fragment, merely scraping the surface. Sometimes, indeed, it would hook up one end of the fragment and after causing a great and needless flow of blood, would slip off. So often had he been disappointed with it, nay even alarmed by the great loss of blood, that he now used either a small fenestrated polypus forceps, when the os was dilated enough to admit it, or a slender handled catch-forceps. With these instruments the fragment was invariably seized and removed by a twisting movement, while the womb itself sustained no injury whatever. It was in fact safer to use these instruments in the womb than to catch a stone in the bladder with the lithotrite.

Dr. Parish had seen a number of mistakes made with the curette. He had been called to a case and found a woman who had been bleeding for four or five months. Her former attendant had curetted and pronounced the womb empty. He and his colleague

dilated and removed a body as large as his two fingers. In another case the uterus was curetted by the attending physician and pronounced empty. Within twenty-four hours the patient aborted. These cases well illustrate how one may be deceived as to when the uterus is empty when relying on the curette. In his own practice, after three months if there is no retention he introduces his finger and delivers everything. He thinks with Dr. Goodell, that something more reliable than the curette must be used to enable one to say that the uterus is empty after abortions in doubtful cases.

DR. LONGAKER does not interfere before the third month at all unless the patient has decided signs of retention, such as hæmorrhage, patulous os, etc., otherwise it is as a rule safe to conclude that everything has come away. During the third, fourth and fifth months retention is very frequent. He thought it surprising what a small portion of placenta would give serious trouble, even small shreds will keep up a very serious hæmorrhage. He always removes anything which has been retained and uses the finger and very frequently anæsthetizes the patient.

DR. R. STEWART asked the members of the Society in what proportion of cases they had to interfere. He has never used the curette for this purpose and has never failed to remove with forceps of proper size. The hæmorrhage generally ceased in from twelve to fifteen hours; if not he investigates and usually finds some debris left behind, but is convinced that if there has been no improper interference at the time of the abortion, such cases are exceedingly rare. He agrees with Dr. Longaker as to the amount of trouble kept up by small pieces of membrane, etc.

DR. HAMILL also presented

A FŒTUS SHOWING INTRA-UTERINE RACHITIS.

This specimen presents a number of anomalies; probably the one most rare is the condition of intra-uterine rachitis; you will note the marked rachitis condition of both femurs. So far as I am able to find 53 cases having been collected by Schorlan and Graefe. This condition of the bones in rachitis may be simulated by the arrest of bony development in those cases of fœtid cretinism occasionally met with in Europe. The absence of the three fingers and corresponding metacarpal bones would, following the classification of Geoffrey St. Halaire, place this among the Hemiteratic class and the subdivision of that class known as Anomalies by Numerical Diminution. This form of monstrosity is not met with very frequently. The absence of the fibulæ renders the specimen still more rare.

DR. J. PRICE exhibited

A PIECE OF THE LARGE INTESTINE

removed that day by Dr. Charles B. Penrose. The patient, a woman, had not had a passage of the bowels for twenty-eight days. There was enormous distension. The constriction was easily found on the right side of uterus and posterior. The intestine was punctured and a gallon or more of feces removed. The gut was then resected, a piece twelve inches long removed. The two ends of the gut were then united in half their circumference and the other half stitched to the abdominal opening, making an artificial anus. Dr. Agnew had seen the case and had recommended immediate operation. The woman was a patient of Dr. Bernardy's. She is now doing well. He believed that Mr. Tait had first advised the preliminary puncture to relieve the distension in conditions that cannot be dealt with by resection. He had some letters from Dr. McMurtry, of Danville, Ky., who had been called 45 miles into the country to see a physician 26 years old. On opening the abdomen he found two perforating ulcers of the cæcum with local peritonitis. He had trimmed the edges of the ulcers and closed with Lembert sutures; irrigation and drainage. On the fourth day: pulse 92, temperature 99, and patient had complete evacuation of bowels.

DR. PRICE also exhibited a

PELVIC-BOUND FIBROID.

Woman, 37 years old. Small. Tumor on anterior face of pelvis bound fibroid could almost be picked up through the abdominal walls. The R. tube contained blood and the ovary was bound down by adhesions. The R. tube and ovary were then tied off, but the L. tube and ovary were so imbedded in a mass of large venous sinuses that it would have been dangerous to have interfered with the ovary. The tube was removed. A clamp was passed around the tumor which had been lifted out of the abdomen and the mass was removed. The clamp came off on the seventeenth day. Temperature was never above 100°; pulse above 65. In connection with this case he remarked that tubal and ovarian trouble complicating fibroids was very common. Dr. Keith had found all the tubes diseased in about all his first 38 cases of hysterectomy. In 9 cases he had attempted to remove them but had failed, and finished by hysterectomy. He was surprised to find Dr. Keith condemning the operation and thought that his statistics explained the matter. His mortality in private practice was less than 4 per cent., and in hospital practice more than 15 per cent.

PHILADELPHIA COUNTY MEDICAL SOCIETY.

Stated Meeting, February 8, 1888.

THE PRESIDENT, J. SOLIS-COHEN, M.D., IN THE CHAIR.

DR. MORDECAI PRICE read a paper on

A CASE OF NEPHRECTOMY FOR GUNSHOT WOUND.

Maggie McG., of Avondale, Chester County, Pa., aged 14 years, white, pale, anæmic girl, was accidentally shot on Wednesday, Dec. 21, 1887, at 9 o'clock in the morning, while handling a four-barreled Sharp's pistol, 30 calibre. She had the muzzle of the pistol turned toward the right side; while attempting to raise the lock with the thumb of her left hand it slipped from her hold and fired the cartridge, which entered her body at the junction of the ninth rib with cartilage, passed directly through the left lobe of the liver, entered the upper third of the kidney, and passing through lodged in the deep mus-

cles of the back near the spine. When we first saw her—twenty-four hours after the accident—her condition was an exceedingly alarming one; pulse 150, temperature 103°. She had passed, soon after the accident, a large quantity of blood from the bladder. But at the time of our seeing her she was not passing blood from the bladder, showing that if there was still hæmorrhage it was into the peritoneal cavity, and also that the bladder was not wounded, for the urine was normal.

Symptoms of peritonitis were well marked; abdomen considerably distended. We had no difficulty in coming to a conclusion as to what was best to be done. Dr. Charles Penrose and myself at once advised the removal of the kidney. This was concurred in by Drs. Hudder and Ewing, the attending physicians. The patient was etherized and opened. A large quantity of clotted blood was removed from the abdomen, the wound of the liver was examined, both entrance and exit. No hæmorrhage was found coming from it. The abdominal incision was then enlarged, and the blood removed from the region of the right kidney, when it was plainly seen that the hæmorrhage was from that organ. The kidney was examined and found to have a hole in its upper third, large enough for a finger to enter. I then made a button-hole opening through the peritoneum with scissors, introduced finger and enlarged the opening by tearing, and without much difficulty nucleated the kidney from its bed. The ascending colon was pushed back or inward toward the spine, and the opening in the peritoneum, through which the kidney was removed, was made in such a manner that the vessels of the bowel were not disturbed. The ligaturing of the pedicle was exceedingly difficult, Dr. Penrose having to tie the ligature the full length of his hand in the peritoneal cavity. Two ligatures were applied, one through the pedicle tying it in halves, the other, a large, heavy ligature in one knot; then the kidney was cut away and the ligature tightened before making the second knot. The stump of the pedicle, or button, as it is called, to keep the ligature from slipping, had a portion of kidney structure in it. There was complete irrigation. A glass drainage tube was left in the kidney wound and the abdomen closed. The patient rallied nicely from the ether, and, on the morning of the second day, Epsom salts was given in large and repeated doses, but could not be retained. On the morning of the third day a second attempt was made to have her bowels moved. Rochelle salts was used, followed by two or three evacuations and passage of flatus by the bowels, which gave great relief. Patient did uninterruptedly well, with temperature not over 102° up to the time (eighth day) of the removal of the glass drainage tube, when rubber drainage was substituted and was left too long, producing quite a rise of temperature and fetid pus at the bottom of the tube, which was at once relieved by the attending physicians removing the tube and cleaning drainage track.

On January 4 was telegraphed for, patient's temperature having been up to 103° the previous night. Abscess was suspected either in the liver or the muscles of the back. I met Dr. Hudders and Dr. Ewing, her attending physicians, in consultation, and found no positive indication of abscess—the girl being in a moderately good condition at the time, with a slight tendency to diarrhœa—temperature 100.4°, pulse 100. She continued to do well until January 11, when Dr. Ewing wrote me: "Some new trouble seems to be developing in our patient; her temperature is 103.2°, her liver is enlarged and tender; complains of pains in left side and shoulder." On the 12th there was quite a gush of pus and bile from the drainage tube opening—about two ounces; this at once relieved her of high temperature and quick pulse. She has had many changes in the last three weeks, with slight discharge of bile and pus from the drainage tube, but has constantly, but very slowly improved. Her physicians have given her every attention, and to them I am greatly indebted for the care they have given her; nothing but their interest in the case could compensate them for their labors. For the result in this case I am greatly indebted to Dr. Charles Penrose, for assistance rendered during the operation. Length of incision six inches. Kidney removed for hæmorrhage.

Dr. Ewing, of West Grove, said: I have nothing to add, except that the condition of the patient is better than Dr. Price states. To-day there was only a drachm of pus discharged. There is refreshing sleep; temperature is normal in the mornings, though there is a slight evening rise; appetite is good; the bowels are regular. I feel that recovery is assured. This child was on the verge of death when the operation was done—the pulse was 150; temperature 103°; the extremities were cold; body covered with clammy perspiration. Improvement was manifest at once. I am personally much indebted to Drs. Price and Penrose for this operation, and I attribute its success to the neatness and dispatch with which everything was done, exhibiting a high order of skill.

Dr. J. B. Roberts said: The case speaks for itself. While I cannot speak from experience, it has occurred to me, and the same suggestion has been made by others, that the difficulty of tying the stump so far down and behind the peritoneum might be lessened by getting the kidney enucleated and then twisting it so as to apply torsion to all the renal vessels, veins as well as arteries. Afterward the ligature might be applied with more ease, and this whether abdominal or lumbar incision be made, though in the absence of experience I judge that it would be easier to do this with a lumbar incision. I presume that there was no intestinal wound in this case, no mention having been made of any.

In connection with the operation by lumbar incision I might refer to an error of my own which illustrates the mistakes our lack of familiarity with operations in this region may lead us into. The operation was undertaken for a supposed stone in the kidney; but as no stone was found, it resolved itself into an exploratory incision and acupuncture of the kidney. The ordinary lumbar incision had been made with care, and I had come upon the kidney with ease. It was suggested that I should enlarge the wound upward and explore the upper end. A few muscular

fibres stretched across the upper angle of the wound, and these I divided by a small cut, when a rush of air into the pleural cavity informed me that I had cut a small hole in the diaphragm. The accident did no harm; it was easily remedied with a few sutures; and the dyspnœa that persisted for a few days was attributed by the patient to the tightness of the abdominal bandage. I was not sufficiently familiar with operations in this region to realize to what extent the posterior attachment of the diaphragm to the vertebræ dips down here, especially when I saw, as I did, the main mass of the diaphragm bulging down as a great sheet in front of the point where I made the additional incision.

THE PRESIDENT said: How does Dr. Price account for the bile?

DR. PRICE said: I cannot say where the bile comes from, except the liver. The wound in the liver is about two inches from the gall-bladder. The ball took a diagonal course and came out at the margin of the liver, and then entered the kidney. I did not know what the effect of twisting the pedicle would be. I could bring the edge of the kidney within an inch of the wound. I consider the abdominal incision the proper one. In this case there were several considerations in its favor. Hæmorrhage had already taken place into the peritoneal cavity; it gave us the chance to examine for wounds of the liver and intestines. We found only wounds of the liver and kidney. The liver was not bleeding, and we had only the kidney to deal with. In view of the discharge of pus from the liver, I now believe that it would have been better to insert into the track of the bullet in the liver a small glass drainage tube—this of Bantock's, which is of about the same diameter as the ball—and drained it. If, as has been stated to me by Dr. Wood, there has been no case of recovery from bullet-wound of the liver, we are not going to make the prognosis any worse by draining, and I think we might make it better.

DR. FRANK WOODBURY read a paper on

A CASE OF NEPHRECTOMY FOR PYONEPHROSIS.

In connection with the case reported this evening, I will briefly relate the notes of a case of nephrectomy performed for me by Drs. Deaver and Agnew, last year, at the German Hospital:

The woman first came to me in the spring of 1886, for vesical irritation, with bloody urine. She had had several such attacks following exposure to cold and wet some two years previously. In September of the same year there was another attack. The urine contained pus, but no blood. I washed the bladder with boric acid and alkalies, and subsequently with a weak solution of nitrate of silver. The pus continued, epithelial tube-casts appeared, and a tumor slowly developed in the right side. Dr. Deaver saw the case in consultation and concurred in the diagnosis of pyonephrosis of right side consecutive to inflammation of the bladder. Dr. Agnew saw the case on December 25, and agreed in recommending operation. On January 10, 1887, nephrectomy was carefully and skilfully done by Drs. Deaver and Agnew. Death occurred five days later, from exhaustion.

DR. DEAVER said: The steps of the operation were lumbar incision, which exposed the kidney closely adherent to parts, especially to the under surface of the liver and to the iliac vessels. It was distended with pus, six ounces being evacuated prior to its removal. The mass was very large, and in delivering without wounding the peritoneum required great care. I now regret that we extirpated, as I believe it would have been better surgery to incise the kidney, wash out the abscess cavity, insert a drainage tube, and to dress it antiseptically as in nephro-lithotomy.

Much difficulty was experienced in ligating the pedicle, as in Dr. Price's case. I believe the abdominal incision to be preferable in dealing with greatly enlarged kidneys. In performing the abdominal operation, the meso-colon descending, instead of the internal meso-colon, carries all the blood-vessels, should be divided, thus avoiding the danger of gangrene of the gut. Delivery is easier, and better access is given to the adhesions, especially those to the iliac vessels.

DR. J. B. ROBERTS said: The case of Dr. Woodbury suggests some studies I made and reported to the American Surgical Association a few years ago. Something can be gained in the way of diagnosis in the early stages of peri-nephritic abscess and other lesions in this region by the study of certain trains of symptoms, pointing to the localization of the disease. Inflammatory affections about the upper end of the kidney, for example, will often show on careful examination a limited pleuritis; when the lower part is involved there is apt to be spasm of the psoas muscle with flexion of the thigh; in the middle part pressure on the renal vein and other vessels may cause an otherwise inexplicable albuminuria.

DR. C. B. PENROSE presented a specimen of

DERMOID CYST OF THE OVARY,

which he had removed two days ago. The woman also had a uterus filled with many subperitoneal and interstitial fibroids, and a large blood cyst of the other ovary.

DR. PENROSE reported a case of

OBSTRUCTION OF THE BOWEL BY CANCEROUS MASS; OPERATION; WITH FORMATION OF ARTIFICIAL ANUS.

The operation was performed seven days ago. There had been complete obstruction of the bowel for twenty-eight days prior to operation. Fecal vomiting occurred two days before operation. At time of operation there was immense abdominal distension, a temperature of 101°, and a pulse of 150. An abdominal incision four inches in length was made, revealing complete occlusion of the descending colon by a cancerous mass twelve inches long, involving also the meso-colon.

Resection was made of the gut and meso-colon, and all indurated tissues removed. The two ends of the divided gut were brought together laterally and united to each other, and the long axis of the abdominal incision, with continued suture, so as to make an artificial anus. A bucketful of fluid feces was discharged immediately after the operation. Relief was immediate; quiet sleep lasted for thirty-six

hours. To-day the abdomen is flat; the pulse is 80 to 90; temperature 99°; there is no pain; the tongue is clean; appetite good, and the patient doing remarkably well.

Stated Meeting, February 22, 1888.

W. W. KEEN, M.D., IN THE CHAIR.

DR. W. W. KEEN, read a paper on

A CASE OF MACEWEN'S OPERATION FOR THE RADICAL CURE OF HERNIA, FOLLOWED BY A SPEEDY RETURN OF THE HERNIA.

I think it important to report failures as well as successes. Macewen's operation, also, has been so generally successful that it is the more important to report the failure of this case as the immediate result of the operation seemed to promise a cure; but, as you will see, the hernia has quickly reappeared. For the notes of the case I am indebted to Dr. Lambach, the Surgical Resident.

The patient is a man 32 years of age, a fresco painter, but for some time at work dredging oysters. When 17 years old he first noticed a right oblique inguinal hernia, for which he wore a truss for a year and then laid it aside. The hernia remained cured for thirteen years. A year ago, while at work dredging for oysters, the hernia returned, and descended into the upper scrotum. He entered St. Mary's Hospital January 6, 1888, on account of the distress and inability to pursue his occupation. The operation was done on the 13th; on the fifth day I removed five of the nine external stitches, and on the twelfth day the remaining four. There was no pus at any time. The highest temperature was 100.2°. He had then two chills, the first on the fifteenth day, his temperature rising to 103°; but as there was no evidence of suppuration, as it yielded promptly to quinine and arsenic, and as his occupation had exposed him to miasmatic infection, we were justified in attributing this to malaria. He was kept in bed for twenty-nine days—*i.e.*, until February 11. At this time I examined him, and found the hernia perfectly cured. He was then allowed to get up, a spica and compress being applied. Examining him yesterday, (February 21), I found the hernia had returned, with, however, one gain—at the time of the operation the external ring was very large, requiring four double sutures. Now it will only admit the point of the index finger. Moreover, he is exceedingly comfortable, so much so that I doubt if I can persuade him to undergo another operation.

An incision was made over the site of the hernia to its lowest point in the scrotum. With the blunt end of the scissors and the finger, the sac was then dissected from the surrounding parts, care being taken to leave no attachment to the spermatic cord. The index finger then was passed within the abdominal wall, and the peitoneum was disected for half an inch around the circumference of the internal ring. A moderately stout ligature of chromicized catgut was tied to the lower part of the sac, and a series of stitches taken from the lower portion of the sac to its mouth. This stitch, by means of Dr. Ellwood Wilson's curved trachelorrhaphy needle, was then passed through the abdominal wall from within outward at a point a half inch above and external to the internal ring, the skin being drawn upward and outward so as to allow the stitch to emerge through the abdominal muscular wall, but not through the skin. Then traction was made on this stitch, thus puckering up the sac, which latter was drawn through the ring and rested against the inner surface of the abdominal wall to become adherent there, closing the hernial opening by a firm pad. The stitch was then secured in place. The external ring was then closed by four double stitches of chromic catgut, passed from side to side. I was extremely careful in denuding the inner surface of the abdominal wall to get a large raw surface at the internal ring, so as to gain firm union at that point; and the patient was kept on his back for four weeks; yet it gave way a few days after letting him up. I shall repeat the operation if he is willing.

DR. H. R. WHARTON: I have no personal experence with Macewen's operation for the radical cure of hernia, but I have seen two cases in which Agnew's operation was employed, and three or four in which McDowell's method was resorted to; these are subcutaneous operations, and do not compare with this open operation in thoroughness. The immediate results seemed good in the cases referred to, but in a short time the hernias were down again. Recent reports from England, though still too recent to allow us to estimate the permancy of the cure, are very encouraging. As to Macewen's operation, I think it one of the best that has been proposed, and if any radical procedure is to be undertaken it seems to promise the best results. Of course, any operation is more apt to be successful in children than in adults.

DR. C. DULLES: I would like to ask Dr. Keen if any appliance other than the bandage was used after the patient began to go about. The hernia looks as if it had been down some time, and not as if it had descended recently. I think it would be best not to trust solely to the strength of the tissues for a little while after the operations. There is a point in the mechanics of hernia that I have noticed, and which I have not seen described by others, and that is, that a patient with an inguinal hernia usually has a pendulous abdomen. I was curious to see if this spare patient of Dr. Keen's would follow the rule, and I saw that he did. I may lay too much stress upon the matter, but I believe that the best appliance is not one that makes pressure over the ring alone, but one that corrects this abdominal outline, and changes the direction of the thrust of the intestines from one at right angles to the plane of the hernial opening to one parallel to its plane. Such an abdominal supporter as women wear would answer the purpose, and I believe it would add to the chances of permanent success after operations for the radical cure of hernia.

DR. KEEN: Of the cause of failure, I can only say that apparently the reparative power did not suffice to obtain adhesion of the sac to the abdominal wall. Why, unless the two chills referred to

had some influence, I do not know. The usual practice of those who have had a large experience with these operations has been not to use any truss. I cannot agree with Dr. Dulles. He is right as to the shape of the abdomen, and in correcting it to a more oblique outline, but the pressure will always be at right angles to the abdominal walls anteriorly, and not down into the pelvis. That would, however, correctly express the direction of the rebound. As to the exact time when the hernia reappeared I cannot say. When I examined him, February 15, four days after letting him up, it was not there. I did not see him again until February 21, when I found it had reappeared. I shall not wait long before repeating the operation. He wants to be earning wages, and I do not want to burden the hospital with any patient longer than necessary. Any danger will have passed over in a week or two, and I will then operate if he consents.

DR. DULLES: When we bear in mind the comparatively mobile state of the contents of the abdomen, we must see, of course, that the intra-abdominal pressure is exerted in all directions, and we might draw any number of arrows to indicate it; but there is only one direction of "*thrust*," which is the resultant of all the lines of pressure; and by supporting the abdomen, as I suggest, by a firm and comparatively unyielding support, we turn the direction of that thrust into a line following the axis of the pelvis, and take it off the ring.

CLINICAL SOCIETY OF MARYLAND.

Stated Meeting, February 3, 1888.

THE PRESIDENT, N. G. KEIRLY, M.D., IN THE CHAIR.

DR. HIRAM WOODS reported

THREE CASES OF HALLUCINATIONS DUE TO THE ADMINISTRATION OF SODIUM SALICYLATE.

The power of sodium salicylate to relieve the pain and shorten the duration of some of the intra-ocular inflammations is now, I think, generally recognized. Iritis and choroiditis are the inflammations specially amenable to this treatment. Nor is its good action limited, as might be supposed, to these cases having a rheumatic origin. Iritis, clearly due to syphilis, without the least suspicion of rheumatism, I have frequently seen quickly relieved by the salicylates. Mercury will cure in time, of course; but the salicylates seem to have the power of aborting the attack.

To accomplish this result, the system must be speedily brought under the influence of the drug, and this requires large doses. This fact gives us a clue to its mode of action. Large doses of the salicylates have the effect of weakening the heart's action, and reducing the blood-pressure. These results are brought about by the combined depression of the contractile force of the cardiac muscle, and of the vaso-motor centre. The latter produces not only a fall in blood-pressure, but prevents a rise in the pressure when the sensory nerves are irritated (Brinton, Materia Medica). These facts place sodium salicylate—if given in large doses—among the antiphlogistics, with aconite, veratrum, large doses of quinine, etc. Still, I can hardly believe that all the antiphlogistic effects of the salicylates are due to their depressant action on the circulation. Other drugs which lower the blood pressure—for instance, the bromides and those already mentioned—do not sensibly relieve the pain nor affect the course of iritis. There seems to be a selective action which we little understand. The large doses required often produce effects which are not only disagreeable, but may, in exceptional cases, become dangerous. Nausea, tinnitus aurium, deafness, fulness in the frontal region of the head, wakefulness are the symptoms commonly met with. The amount which will produce these physiological effects usually stops the inflammation, or by its failure, induces us to use other means. More rarely, violent purging, involuntary evacuations, great dyspnœa and collapse are observed (Bartholow). Professor Chisolm, of this city, reported two or three years ago a case of purging and involuntary evacuations occurring in a patient, who took, through a mistake of the druggist, 192 grains instead of 24. There were, in addition, marked depression and weakness, but the patient fully recovered in two days. The force of the drug is sometimes expended wholly upon the nervous system. Such extreme effects as complete deafness, ptosis, strabismus are mentioned in our text-books as having been occasionally observed. Bartholow mentions a case of amaurosis due to the administration of 125 grains. There was no retinal lesion. Delirium and visual hallucinations are nervous phenomena more commonly observed than those just mentioned. Brinton says: "Salicylate of sodium in some persons tends to cause most disagreeable visions, whenever the eyes are shut, and I have seen it have this effect even in such a small dose as 5 grains" (Materia Medica). According to Bartholow, it is specially apt to produce delirium in drunkards. In the *British Medical Journal* of January 29, 1881, Dr. Bastian presents a series of five cases of delirium and visual hallucinations following the use of sodium salicylate in acute rheumatism. One case was that of an old toper, and the character of the delirium was similar to that of delerium tremens. In another the rheumatic poison seemed to be specially virulent, and the delirium was more like that sometimes observed in acute rheumatic fever, and due only to the rheumatic infiuence. Dr. Bastian concludes that if the patient's condition is such as to predispose to delirium, the salicylate will probably precipitate the attack, which, in its characteristics will resemble the delirium occurring in the predisposing disease. Cases, however, are here and there recorded in which, like those immediately to follow, there was no pyrexia to produce the trouble, nor any influence which could be held responsible except the salicylate.

Case 1.—Mr. J. S. age 43, occupation journalist, consulted me April, 1886. He had had iritis in the right eye for four days. The iris was muddy, the pupil contracted, the periphery of the iris bulged forward, and there was pus in the anterior chamber. Pain was intense not only in the eye, but in the

temple. There was no syphilis, but an attack of rheumatism three months previous to his visit to my office, seemed to offer an explanation for his iritis. There was, so far as I could make out, no organic heart trouble. He gave a distinct history of phthisis in the family, and while I could not find a cavity in either lung when I examined him, there was dulness over the apices of both lungs, there was considerable emaciation, and he had a cough which was sometimes very troublesome. I have not seen him since I discharged him in the spring of 1886, after his iritis had gotten well; but he wrote me, from his home in Baltimore County, during the past winter that he had been obliged to give up nearly all his work, that his cough was incessant, and he was growing weaker. Undoubtedly he has fallen a victim to phthisis. His habits were temperate. He said he usually took a glass of sherry with his dinner, and sometimes, a little whisky at bed time. I applied a compress bandage to his eye, ordered the instillation of a 4 grain atropia solution, and prescribed for him 20 grains salicylate sodium every four hours. When he called at my office the next day, I was engaged, and he sat in the waiting-room about half an hour. After I had examined his eye, finding it greatly improved, he asked: "Doctor, is there a big colored women with a child on her lap sitting on the sofa in the other room?" I told him I didn't think there was, but to satisfy him, I looked and found no one there. On learning this, he said: "I wasn't *sure* of it. I didn't see her until I had been in the room a little while, and then she wasn't clear enough to make me sure." On questioning him, I found he had, to settle the question in his own mind, gone up to the sofa, and tried to touch the supposed woman, and found his hand came down upon the sofa. He then told me that he had taken four of the powders between 10 A.M., and 10 P.M., the day before, making 80 grains in all. He retired about 10 o'clock, and did not take a stimulant that night. After being in bed a little while he noticed his ears buzzing. He could not sleep, and soon thought he was having a dispute with his son. He sat up in bed, made up his mind that it was all imagination, laid down again, and talked away at his son as much as ever; so much so that his wife asked him to stop talking. After awhile the delirium changed and he thought he was at the telephone in his office, and couldn't speak above a whisper. He got out of bed two or three times during the night to answer a supposed telephone call. In the morning, while coming to town in the cars, he was troubled by seeing a black cat on his knee. He could convince himself that these things were all hallucinations; but no sooner would he do this than they would all come trooping back as real as ever. When standing alone he suffered from giddiness. His pulse was about 80, temperature normal. I had him pass his urine in my office, and found it free from albumen. The salicylate was stopped. He slept very little that night, but the next day seemed completely himself. The iritis was afterwards treated with kal. iodid. and the alkalies.

The other two cases occurred in the private practice of Professor Chisolm, who has kindly written out for me the following notes:

Case 2.—L. G., aged 50, of temperate habits, has been for ten years troubled with repeated attacks of specific iritis. Each attack runs its tedious course of six weeks or two months under the orthodox treatment of iod. pot. and mercury with the local use of atropia and an occasional application of leeches to the temples. Four years since the treatment was changed to the salicylate of sodium in 25 gr. doses given four times a day. The drug alleviates very promptly the inflammatory attacks and enables him often to get out in a fortnight—a marked shortening of the paroxysm. In his case the remedy is not without its detractions. It does not disturb very materially his digestion, but when continued for some days produces very curious psychological effects. By the fourth day of taking, particles of dust become conspicuous against white surfaces and pollute the water which he drinks. The particles covering his white bed-spread grow in size into green flies, and some of these develop into green frogs, with a few green snakes. They are not stationary but are in constant motion. He knows them to be an illusion, but they look very real notwithstanding. If the medicine is stopped at this stage of the mental disturbance in twenty-four hours they are all removed, disappearing in the transition forms in which they introduced themselves. Should it be needful to continue the large doses of the salicylate, figures of men, not always with the most pleasant countenances, appear on the scene. At one of my morning visits my patient reported his night's sleep much disturbed by the intrusion of three men into his chamber. In waking, by the dim light of the turned down gas, he saw three men inspecting his box of valuable papers, which they for convenience had transferred to a side table. He reasoned with himself that no one could get into his house, and that his body-servant was in the contiguous room. He could shut out the vision by closing his eyes. At my visit he was sitting facing an open door leading into the next chamber. After describing his visions of the previous night, he said. "Now I know perfectly well that there is no one in that room, pointing to the door, and yet there stands in a threatening attitude a big man with an ugly club. I can shut him out by shutting my eyes, but there he is all the same."

On another occasion, after using the salicylate for some days, with the recurrence of motes, then flies, frogs and snakes, always green ones, I found him at midday sitting in the dining-room. As soon as I had examined his eyes and found that the injection had nearly disappeared he said that he was very glad of it, and could now stop the sodium because the hallucinations were becoming annoying. Just before I had arrived, a mouse had come out from under the grate. After playing about on the rug it commenced to puff up and became a cat. The inflation continued, the animal becoming larger, until it assumed the appearance of a tiger, upon mischief bent. When the animal crouched with the intent of springing toward him he asked his mother, who was reading the morning paper at the window, to come toward the fireplace. In doing so she got in between himself and the threat-

ening animal, and the illusion vanished. During these conditions of mental excitement the reasoning powers were never disturbed, nor did the conversation at any time indicate otherwise than a clear head. In this case the physiological influences seemed always to run in the same channel. These experiences had occurred to him on several occasions at many months of interval, and always in a regular order. After three or four days taking large doses of the salicylate he would mention to me: "Doctor, I saw the little pieces of stick in my basin this morning; the flies will come before the day is out."

Case 3.—Miss S., aged 50, had been operated upon for double acute glaucoma. Vision had been reduced to light perception before operation, and was so perfectly restored that she could use her eyes for hours daily in confined literary pursuits. Four years after the iridectomy, her left eye was attacked with a sharp inflammatory attack, which she conceived to be a return of her glaucomatous trouble. I saw her after three days of suffering, and found an acute attack of iritis, with some pus in the anterior chamber, a heavy rim of injection around the cornea, a very painful eye with very dull vision. The salicylate of sodium was given in 25 gr. doses, four times a day. By the second morning all congestion had disappeared. The media had cleared up in a wonderful manner, and vision had returned. She stated that she had had a most horrible night of hallucinations of most disagreeable forms. She was very glad to know and feel that the eye was so very much better. She had made up her mind, from the horrors of the preceding night, that she could not take another dose of the medicine, even if the safety of her eye depended upon it.

In my own case, and the last of Prof. Chisolm's, the delirium came on during the first ten hours of the administration of the drug. In the *Practitioner*, for May, 1882, Dr. C. S. Coulston publishes an interesting and exhaustive thesis on "The Use of the Salicylates in Rheumatism." Speaking of this delirium, he says that it usually comes on within the first eight hours, and is due to overwhelming the nervous system with large doses before tolerance is established, which can be readily done. If tinnitus aurium appears, the salicylate, Dr. Coulston thinks, should be discontinued until the tinnitus has gone. Then the salicylate can be given with freedom. Each of the five cases reported in the *British Medical Journal* by Dr. Bastian afterwards took the medicine without trouble. In the extremely interesting case (the first narrated by Prof. Chisolm), the medicine seems to be well borne for three days, and then the delirium comes. Tolerance is not established. This case also opposes the remark of Brinton's that the hallucinations only appear when the eyes are closed. In each of these cases there was full knowledge that the objects seen *were hallucinations*, but they could not be permanently driven away. The patients were, on this account, not greatly terrified. Dr. Coulston states that the hallucinations are usually of a harmless, non-terrifying character. One of his patients insisted that a bundle of rags in the corner was the baby of an intimate friend, and he had to take care of it. Occasionally, however, the delirium takes the form of mania, and the patient is violent.

In those diseases which sometimes of themselves cause delirium, the question of diagnosis becomes an interesting one. Dr. Coulston shows that the salicylic delirium is to be distinguished from that due the rheumatic influence by the absence of fever and lessening of the joint pains at the time the delirium occurs. This was so with his cases, and with those reported by Dr. Bastian. The latter gentleman quotes the observation of Simon, that delirium in rheumatism means involvement of the heart, and this may throw doubt on the influence of the salicylate in causing the hallucination. In three of Dr. Bastian's cases there was no heart complication at all. From the delirium of drunkards (delirium tremens), it is to be diagnosticated by "the absence of tremulousness in the hand or tongue."

The manner of the production of the delirium is also an interesting question. As some of the cases also showed albuminuria, it was supposed that acute nephritis had resulted from the use of the salicylate, and that uræmia had caused the delirium. Subsequent cases have disproved this. In only one of Dr. Bastian's cases was there albuminuria. Dr. Ackland, quoted by Coulston, "thinks that uræmia, due to the great diminution of the amount of urea excreted by patients taking salicylates, may be an important factor in the production of the delirium. Dr. Bastian's opinion—that it precipitates an attack of delirium impending from some other disease—has already been alluded to. By others the delirium has been supposed to be due to impurities in the salicylate, and it is asserted that the *pure* salicylate never produces delirium. Dr. Coulston concludes his study of this branch of his subject with the remark: "The direct action of the salicylates on the nervous system is sufficient to account for the delirium, apart from either albuminuria, uræmia, or the rheumatic complication, though . . . . those would be predisposing causes."

FOREIGN CORRESPONDENCE

LETTER FROM LONDON.

(FROM OUR OWN CORRESPONDENT.)

The Albuminates in Medicine—A Large Fee Refused—Diagnosis and Treatment of Ruptured Intestine without External Wound—Sanitary Registration of Buildings—Increase of Population of England and Wales—Cremation in England.

The albuminates are a class of medicine which is coming into extended use, and one of the most highly spoken of, in therapeutical value, of the preparations of iron, is that which falls into this category. In Germany albuminate of iron has already been successfully introduced into medical practice and will doubtless sooner or later be put upon its trial in this country also. The particular preparation which has been received with such favor is that known as liquor

ferri albuminatic "Drees," which besides the advantage of being less unpleasant to take than any other iron compound is also preëminent in the readiness with which it is absorbed from the circulatory fluids. The following formula at present is found to be the most suitable. Of dried egg albumen 2.5 parts are dissolved in 30 parts, (all, including the following, by weight) of cinnamon water, forming solution No. 1. Then 12 parts of liquor ferri perchloride are diluted with 40 of water and 12 of spirit, forming solution No. 2. These two are then mixed together, shaken, and ½ a part each of liquor ammonia and liquor soda immediately added. The whole is thoroughly agitated until completely mixed. The product is a reddish brown, somewhat oleaginous looking liquid with a sweet taste and a slight alkaline reaction. It is miscible with all proportions of water, and with milk, or other albumen rich fluids, without precipitation. The former liquid forms a suitable vehicle for its administration, and the dose is from one to four teaspoonfuls several times a day. Prolonged boiling will not separate the albumen of the preparation.

The fee of £6000, which it is stated Sir Morrell Mackenzie has been offered to go to America to see a patient, is probably the biggest thing in the way of a single fee that has been heard of in these days. Sir Morrell himself got £1000 for going to Cannes to see Mr. Stirling Crawford, and Dr. Hahn had the same amount for coming from Berlin to Mr. Montague Williams. Sir Henry Thompson received £2000 (of which he returned half) once, but these are trifles compared with the fee Mackenzie has declined.

Speaking at the London Clinical Society upon the diagnosis and treatment of ruptured intestines without external wound, Mr. Mayo Robson said that in some cases of ruptured intestine the symptoms were so distinct as to be pathogenic, that other instances of abdominal injury might present most of the signs of ruptured intestine and yet recover, the shock being due to disturbance of the sympathetic nervous system, and the liver dulness diminished by distended intestine, that the usual symptoms might be entirely absent for a time, only becoming evident after some hours, and that a failure in diagnosis might occur from injury to other regions taking the attention from the abdomen. With regard to the diagnosis Mr. Robson considered the signs and symptoms separately, and then collectively, remarking on the variability of the cause, the difference in the degree of shock, the usually rapid and feeble pulse, the constant presence of vomiting and pain, and later the usual signs of peritonitis, but especially dwelling on the importance of altered liver dulness, which when normal was almost proof of absence of perforating wound of alimentary canal, when diminished was suspicious of perforation, but when absent was almost pathogenic of rupture. He considered the symptoms most to be relied on were shock, more or less severe, following immediately on an accident, pain in the abdomen, moderately quick and flabby pulse, vomiting of contents of stomach, followed by bilious vomit, anxious countenance and diminished or absent liver dulness. Mr. Robson remarked that no reliance could be placed upon the expectant treatment, and that the only hope of success lay in early operation. For his own guidance he had adopted the following rule: In cases where there was a reasonable belief that the intestine was wounded, as evidenced by the history, symptoms and signs, exploration by a small median incision must be made, when if there were any rupture of the bowel, flatus or serum, tinged with blood or purulent material, would escape through the small peritoneal opening which could then be enlarged and necessary treatment adopted; but should no flatus or fluid appear and the peritoneum prove to be healthy, the small wound could be closed and no harm would have been done.

A Conference has been held at the Society of Arts, under the Presidency of Sir Joseph Fayrer, to consider the sanitary registration of buildings, with special reference to the bill which is to be promoted in Parliament during the coming session. In the course of a paper the objects of the bill were defined as (1) to seek to protect the community against the unsanitary conditions in public and semi-public buildings; and (2) to encourage attention to the sanitary state of private dwellings. Dr. Brudenell Carter moved a resolution declaring the expediency of a compulsory inspection of all public and semi-public buildings with a view to their being properly certified by a competent authority as fulfilling the requisite sanitary condition, and also advocating the establishment of a public sanitary registration office. The resolution was unanimously carried.

The Registrar-General's returns for 1887 show that the increase of population of England and Wales during the year, as estimated by the excess of births over deaths, was 355,440. This is 11,000 less than the increase of the previous year, showing that the falling off in the rate of increase is not only maintained but has even been accelerated. According to the rate of increase from 1871 to 1881, it should have been 23,669 more for 1887 than it actually has been. According to the Board of Trade returns, the emigrants from the same portion of the United Kingdom numbered 172,324, thus leaving a net increase in our poplation of 183,106, without allowing anything for immigration. The death-rate last year was 18.8, a figure which is less than it has ever been since the commencement of civil registration in 1837. Indeed so steadily has the death-rate declined during recent years, thanks no doubt to improved sanitation, that it is estimated that England and Wales contained at the end of last year more than 400,000 persons who would have been dead had the death-rate that prevailed from 1871 to 1880 been maintained. The total population of the United Kingdom in the middle of 1887 is estimated at 37,091,564, of which 28,247,151 were in England and Wales, 3,991,499 in Scotland, and 4,852,914 in Ireland.

Cremation in England, according to the returns of the Cremation Society, appears to be gaining in favor, as during the present year they have cremated five bodies at their working crematorium. In the case of a child eight months old, the ashes weighed only eight ounces. Up to the present time thirty-one cremations have occurred at the Society's crematorium.

G. O. M.

DOMESTIC CORRESPONDENCE

LETTER FROM NEW YORK.

(FROM OUR OWN CORRESPONDENT.)

Relations of Summer Diarrhœa and Cholera Infantum to the Weather—Hospital Saturday and Sunday Fund.

At the last meeting of the Academy of Medicine in February Dr. A. Seibert read a paper on the relations of cholera infantum and summer diarrhœa to the weather, which showed a most commendable degree of industry in its preparation. These statistics bring to light a number of interesting points, some of which are in opposition to the views generally held by the profession and the laity; but it is to be noted that exception was taken to some of his conclusions by the speakers who took part in the discussion on this occasion.

The paper was based upon observations made during a period of ten years, extending from January, 1878, to January, 1888, in the children's department of the German Dispensary of this city, and was illustrated by a large number of charts. The cases studied included, he said, all those of acute gastro-intestinal catarrh, occurring in children under the age of 5 years, which were treated at the Dispensary during this time. As was naturally to be expected, the largest proportion of cases occurred during the summer months and the smallest number in the winter months. His statistics, as well as those of the Board of Health, however, he claimed, showed that the disease existed all the year round (even in the coldest weather), and that the proportionate mortality was just the same in cold as in hot weather—about one case in every four proving fatal.

It was a somewhat remarkable fact, he went on to say, that the number of cases and deaths was always much greater in the month of July than in August. Thus, in the ten Julys there were 2,443 cases at the Dispensary, and in the ten Augusts only 1,524; while the number of deaths reported in the city of New York during the ten Julys was 12,428, and during the ten Augusts only 6,205. The reason for this difference, he thought, might perhaps be explained by the fact that it took a few months, after the warm weather had set in, to fully arouse the tenement-house population to the danger to which their children were exposed from this disease, and to the necessity of taking suitable precautions as regards diet, fresh air, sanitary conditions, etc., for its prevention.

During the summer months Dr. Seibert said that it was found that the number of cases and of deaths bore no relation whatever to the rise and fall of temperature, and the same was true as regards the range of humidity; so that warm moist weather did not predispose more to the disease than warm dry weather. He stated that he had also made a very thorough investigation of the effect of light and heavy rain-fall; but totally without result. Previous to this it had been a favorite idea with him that want of water on the upper floors of tenement-houses constituted a somewhat important factor in the causation of summer complaint in the city. Local rain-falls also had no effect; and the same was true in regard to the velocity of the air-current.

He believed it to be still a disputed point whether direct heat is capable of causing the disease in question; and he had accordingly made a special study of all the hot days in the ten summers—when the thermometer rose to 85° or higher. According to prevalent opinion, the months containing the greatest number of hot days ought to have had the greatest number of cases and of deaths; but he had found no evidence supporting this view. Thus, in the last two weeks of June, 1880, there was a large proportion of these hot days, and in the same period of 1887 there were but few of them; yet the number of cases was just about the same in both of the fortnights mentioned. Again, in July, 1881, when there were but few hot days, there were 290 cases, while in July, 1887, which was considerably hotter, there were only 196; a ratio of 3 to 2.

How, then, were we to account for the fact that in the warm months there are always such a large number of cases? It was evident, he said, from the facts just pointed out, that *hot* weather was not necessary for the production of the disease. In regard to *warm* weather, however, the case was different; and the statistics collected showed that in the early part of the summer season, as soon as the minimum daily temperature reached 60°, and this continued for a few days, an increase in the number of cases of acute gastro-intestinal catarrh was noticed. Furthermore, if the minimum daily temperature remained above 60° for a number of days (say for a week or more), it was noticed that the disease became epidemic. The reverse of this was noticed at the close of the warm season in October, the month of departure. During the first half of the month the minimum daily temperature usually reached 60°; but in the latter half, when the colder weather set in, the end of the epidemic occurred.

To sum up, an examination of the records of every summer month, and of every day of each month, during the last ten years, had led him to the following conclusions:

1. Hot weather, either dry or moist, is not necessary for the epidemic appearance of acute gastro-intestinal catarrh.

2. Warm weather, either dry or moist, showing a minimum daily temperature of not less than 60°, brings on the epidemic every year, irrespective of the maximum daily temperature.

3. The disease loses its epidemic character as soon as the minimum daily temperature falls below 60°, as in October.

4. Therefore, this disease cannot be brought about by the direct effect of high temperature upon the child's body.

Dr. Seibert then went on to speak of the milk that furnishes the principal food of so many young children. It was often carried long distances, he said; being much jolted about, and absorbing impurities from the time it left the cow. It was, therefore, only a question of how far the decomposition of the milk had advanced by the time it was consumed by the

child. It was well known that a low temperature retarded decomposition, and Dr. Cyrus Edson, of the New York Health Department, had informed him that in his experience he had found that milk usually began to turn whenever its temperature reached 60° or higher. Chief Engineer Birdsall, of the Department of Public Works, had also informed him that whenever the temperature of Croton Lake rose to 60° or above, there was a peculiar taste to that water which he attributed to the decomposition of certain matters contained within it.

In the discussion that followed the reading of the paper Dr. L. Emmett Holt said that in summer there were different forms of diarrhœal disease in young children, and that he thought it advisable that some distinction should be made between them. In the production of what is ordinarily known as summer complaint he believed that there were four principal factors concerned, viz.: 1, heat; 2, feeding; 3, sanitary conditions; and 4, constitution; and that the most important of these factors was heat.

Dr. J. Lewis Smith said that he quite agreed with Dr. Holt as to the importance of distinguishing between the different forms of disease met with. He had seen cases in the warmest weather in which an aggravation of the symptoms resulted from reduction of temperature. The child took cold, and the disease was then apt to assume a dysenteric tendency. He thought there was perhaps a fallacy in comparing summer diarrhœa with the diarrhœa met with in cold weather, as he believed the latter to be an entirely different affection from the former. In the cooler months the causes of the trouble were usually so different that it was unjust to classify the two diseases together, although the lesions might be the same. The difference between the two was as great as that between the bronchitis incident to pertussis or measles and idiopathic bronchitis.

It seemed to him, also, that one might be misled by the number of deaths reported. Thus, many of the deaths occurring in August or September might be children who had contracted the disease in the earlier part of the summer. The mortality, as a rule, was somewhat greater in September than in May, although the temperature was usually higher in the latter month than in the former; and the reason was because many of those dying in September had been taken ill in one of the previous months.

It could be stated in a general way, he thought, that the disease known as summer complaint was caused by heat; but in what way the heat operated to produce it was not as yet clearly ascertained. It was evident that heat alone was not sufficient for its production, or else the disease would be found prevalent in the country as well as in the city. It must be a fact, therefore, that there were certain causes which were brought into operation by the unsanitary conditions met with in the city in hot weather; and the opinion was gaining ground among the best observers that summer diarrhœa is a microbic disease. In Asiatic cholera, the causative agency of Koch's bacillus had been pretty generally accepted, and it was believed that this micro-organism was received through the mouth and acted as a source of irritation to the intestines by its actual presence, and not by causing decomposition of food. In like manner, it did not seem unreasonable to suppose that microbes might act in the same way in some cases of summer diarrhœa.

Dr. Caillé said that, in his opinion, decomposing milk was the chief exciting cause of the trouble. He believed, also, that high temperature sometimes does have a pernicious effect upon the human body, and thus serves to pave the way for some agency which will give rise to the diarrhœal trouble. It was a fact that children nursed at the breast, or brought up on some of the numerous infants' foods in the market, who never get cow's milk, will sometimes be attacked with serious gastro-intestinal disease if allowed to overload their stomachs in hot weather, while they will suffer but little, if at all, under the same circumstances in cold weather.

He then quoted some experiments made by two French physiologists on animals exposed to a continued temperature of 104°, in which the phenomena observed to result from this exposure were: 1, increase of nervous excitability; 2, nervous depression; and 3, convulsions, coma and death. The same results, he said, had been noticed to be produced in children when the weather was very hot. It was his opinion, therefore, that while high temperature did not directly produce diarrhœa, it did have a pernicious effect upon the system, and under these circumstances any irritating substance would be likely to give rise to diarrhœa.

As regards the smaller number of cases of summer complaint, as well as of deaths from the disease, in August than in July, he thought that perhaps one reason for this was that a much larger number of children left the city in August than in July, while those which remained had the advantage of the numerous fresh air excursions then provided for the poor.

The President, Dr. A. Jacobi, said that there was a great difference in the cases observed. The larger number were of a simple catarrhal nature. In others, where the discharges were serous in character, there was a tendency to collapse. In such cases the lesions found in the intestines after death might be very slight, while several of the organs of the body might be found to be in an advanced stage of granular degeneration. He believed that great heat would kill by its direct effect upon the muscular system, including the tissue of the heart itself; the high temperature having the effect of coagulating the myosine of the muscles. Intense heat also had a certain influence on the surface of the body, causing an immense dilatation of the blood-vessels. Insufficient nutrition, particularly of the brain, would result from this, and thus collapse would be brought about. These were the cases of true cholera infantum, which generally terminated fatally, and which were liable to be met with in well-to-do families as well as among the very poor. The large majority of the cases met with, however, were of gastro-intestinal catarrh.

Dr. Jacobi said that he had been much interested in the fact demonstrated by Dr. Seibert's investigations, that 60° was the turning-point for this disease,

and it was especially noteworthy in this connection that Dr. Edson had expressed the opinion that milk began to decompose, and Chief Engineer Birdsall the opinion that water began to be affected by decomposition, also at 60°. In conclusion he made some remarks in regard to the importance of proper feeding.

The annual collection of the Hospital Saturday and Sunday Association amounted this year to the handsome some of $50,408; which, notwithstanding the withdrawal of the Presbyterian Hospital from the Association, renders it possible to distribute among the hospitals entitled to a share of the undesignated contributions some $6,500 more than last year.

P. B. P.

NITRITE OF AMYL IN DYSPNŒA.

Dear Sir:—THE JOURNAL of January 21 contained an editorial comment on the use of "Nitrites in Asthma," as observed by Professor Fraser, of Edinburgh, wherein it was stated that the nitrite of amyl, formerly given by inhalation, produced the same effect with much longer continuation when given by the stomach.

At that time I had a patient with Bright's disease, who suffered most agonizing paroxysms of dyspnœa—they were simply terrific, notwithstanding the use of ordinary measures. There was no asthma whatever. On the recurrence of an attack, after reading the editorial, I gave 3 drops of nitrite of amyl in a teaspoonful of brandy without expecting much result, but simply as a *dernier ressort.* The result was simply miraculous! It was almost instantaneous. From a sense of impending suffocation the patient began to breathe perfectly freely in less than five minutes. This relief lasted for upwards of twelve hours, when the same quantity was repeated on the recurrence of another attack, with the same result, and without increasing the dose. The nitrite was given on every recurring attack until the attacks finally disappeared, and for several days the patient has had no dyspnœa whatever. The original disease, however, is unaffected by the nitrite.

Now, while I am free to admit that one swallow doesn't make a summer, and while I know that this remedy is not especially recommended for the dyspnœa of Bright's disease, still, I have seen enough of its effects in this case to make me wish that I could tell my experience to the whole profession at once.

E. B. WARD, M.D.

Laingsburg, Mich., February 18, 1888.

ASSOCIATION ITEMS.

SECTION OF OPHTHALMOLOGY, OTOLOGY AND LARYNGOLOGY.

Members of the Association who contemplate contributing papers to this Section are requested to send the titles of the same, as soon as possible, to the Chairman of the Section, Dr. F. C. Hotz, 103 State Street, Chicago, Ill. The following papers are already promised for the approaching meeting of the Section:

"Gummata of the Ciliary Region," by Dr. S. C. Ayres, of Cincinnati.

"The Advantages of Leaving One Eye Open during the After-treatment of Cataract Cases," by Dr. J. J. Chisolm, of Baltimore.

"Melanotic Disease of the Conjunctiva and Episcleral tissue, with Five Illustrations," by Dr. Rob. Sattler, of Cincinnati.

"On Nutrition, or the Constitutional Treatment of Diseases of the Ear," by Dr. Laurence Turnbull, of Philadelphia.

"The Bougie in Catarrhal Inflammations of the Middle Ear," by Dr. W. Chatham, of Louisville.

"Reflex Nasal Cough, with Report of Cases," by Dr. Max Thorner, of Cincinnati.

"An Interesting case of Fibroma of the Larynx," by Dr. Jos. Eichberg, of Cincinnati.

"A Plea for the Better Recognition of the Oculist in the Service of the U. S. Pension Department," by J. W. Wright of Columbus.

"The Treatment of Strabismus due to Paralysis or Extreme Over-correction with Loss of Motion," by Dr. A. E. Prince, Jacksonville, Ill.

"Illustrative Points in the Examination of the Nose and Throat," by Dr. Carl von Klein, of Dayton, Ohio.

"Binocular Astigmatism," by Dr. H. Culbertson, of Zanesville, Ohio.

MISCELLANEOUS.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT U. S. ARMY, FROM FEBRUARY 18, 1888, TO MARCH 2, 1888.

Lieut.-Col. Edward P. Vollum, Surgeon, granted leave of absence for four months, with permission to go beyond sea and to apply for an extension of two months. S. O. 41, A. G. O., February 20, 1888.

Capt. E. F. Gardner, Asst. Surgeon, granted leave of absence for one month and twenty-one days. S. O. 41, A. G. O., February 20, 1888.

APPOINTMENT.

Paul Schillock, to be Asst. Surgeon, with the rank of First Lieut., January 31, 1888.

OFFICIAL LIST OF CHANGES IN THE MEDICAL CORPS OF THE U. S. NAVY, DURING THE WEEK ENDING MARCH 3, 1888.

Surgeon T. C. Heyl, orders to the receiving ship "St. Louis" revoked.

Surgeon C. H. White, present duty continued to October 1, 1888.

Surgeon T. H. Streets, ordered to the receiving ship "St. Louis."

Surgeon M. C. Drennan, ordered to the receiving ship "Vermont."

Surgeon G. R. Brush, detached from the receiving ship "Vermont," and to the "Pensacola."

P. A. Surgeon Victor C. D. Means, detached from Naval Hospital, New York, and to the "Pensacola."

Medical Inspector A. A. Hochling, detached from the "Pensacola" and wait orders.

P. A. Surgeon G. E. H. Harmon, detached from the "Pensacola" and wait orders.

P. A. Surgeon J. M. Edgar, detached from the "Pensacola" and wait orders.